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COMPREHENSIVE DATA HANDLING SYSTEM (CDHS), EMISSIONS INVENTORY SUBSYSTEM USERS GUIDE

IBM Federal Systems Division
Gaithersburg, Maryland

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1.0 INTRODUCTION

This document is intended to provide instruction in the use of the Emission Inventory Subsystem (EIS) of the Comprehensive Data Handling System (CDHS). With this goal in mind the document is organized in the following manner:

- SECTION 2.0 - Contains an overview of the EIS system, a brief functional description of each component program comprising the system and a detailed discussion of the system master file and the general transaction cards required to build the master file.
- SECTIONS 3.0 through 6.0 - Contain detailed functional descriptions of each program in the EIS system, along with complete instructions on the use of all program functions. The sections are organized as follows:
  - SECTION 3.0 - File Maintenance and Retrieval
  - SECTION 4.0 - Output Programs
  - SECTION 5.0 - Data Conversion Programs
  - SECTION 6.0 - Emission Factors Table Programs
- SECTION 7.0 - Contains complete instructions, with examples, on how to run the EIS system on the computer.

If a more complete knowledge of the logic of the EIS system is desired it is suggested that the user consult the EIS Program Documentation Manual.

2.0 EMISSIONS INVENTORY SUBSYSTEM (EIS) OVERVIEW

When dealing with atmospheric pollution, it is necessary to amass, catalog, sort, evaluate, and perform calculations upon large volumes of data. The Emissions Inventory Subsystem of the Comprehensive Data Handling System provides a systematic method for collecting this data in a data base that will provide a central source for the information needed to help control air pollution. If the system is to be helpful it must maintain the data base, keeping the information current, and provide a means for access to the information, presenting it in a usable form.

The Emissions Inventory Subsystem provides the ability to create and maintain, and to retrieve and print data from the data base. The creation and maintenance is accomplished with the File Maintenance program. This program allows the user to keep his data base information current and useful. Access to the data base information is provided by the Retrieval program set. These programs provide the means of extracting desired information from the data base. The output print programs are then used to convert the extracted information to a form readable by the user. These three functions form the basic system.

In addition to the basic system, several preprocessor and postprocessor programs are provided which perform functions necessary to make this system compatible with existing systems. Other programs provide services which help make the maintenance process automatic. All of the system programs are described in detail in the following sections.

2.1 ORGANIZATION

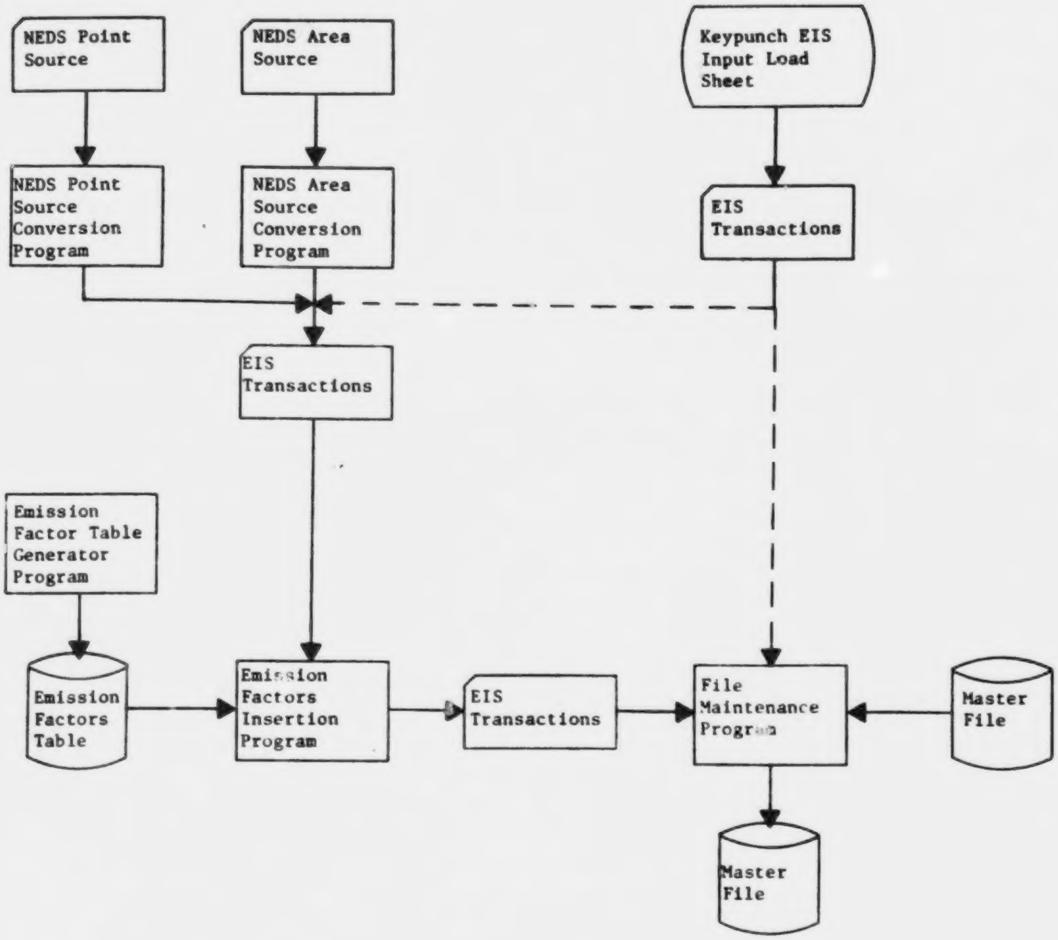
The Emission Inventory Subsystem of CDHS is organized around two main programs, File Maintenance and Retrieval. There are ten other programs in the system that perform service functions. The interface for the programs that feed the File Maintenance program is the EIS transaction card. The Master File serves as the interface for the rest of the programs.

The EIS components are:

- File Maintenance - This program is used to create and maintain the Master File.
- Retrieval Language Processor - This program generates the retrieval program.
- Retrieval - This program is used to extract information from the Master File.
- File List - This program provides a detailed listing of the Master File.
- Summary Report Output - This program will produce a listing of emission totals for selected control breaks.
- NEDS Point Source Output - This program converts the Master File to NEDS Point Source card formats.
- NEDS Area Source Output - This program converts the Master File area records to NEDS Area Source card formats.
- NEDS Area Source Report - This program prints a formatted listing of NEDS Area Source cards.

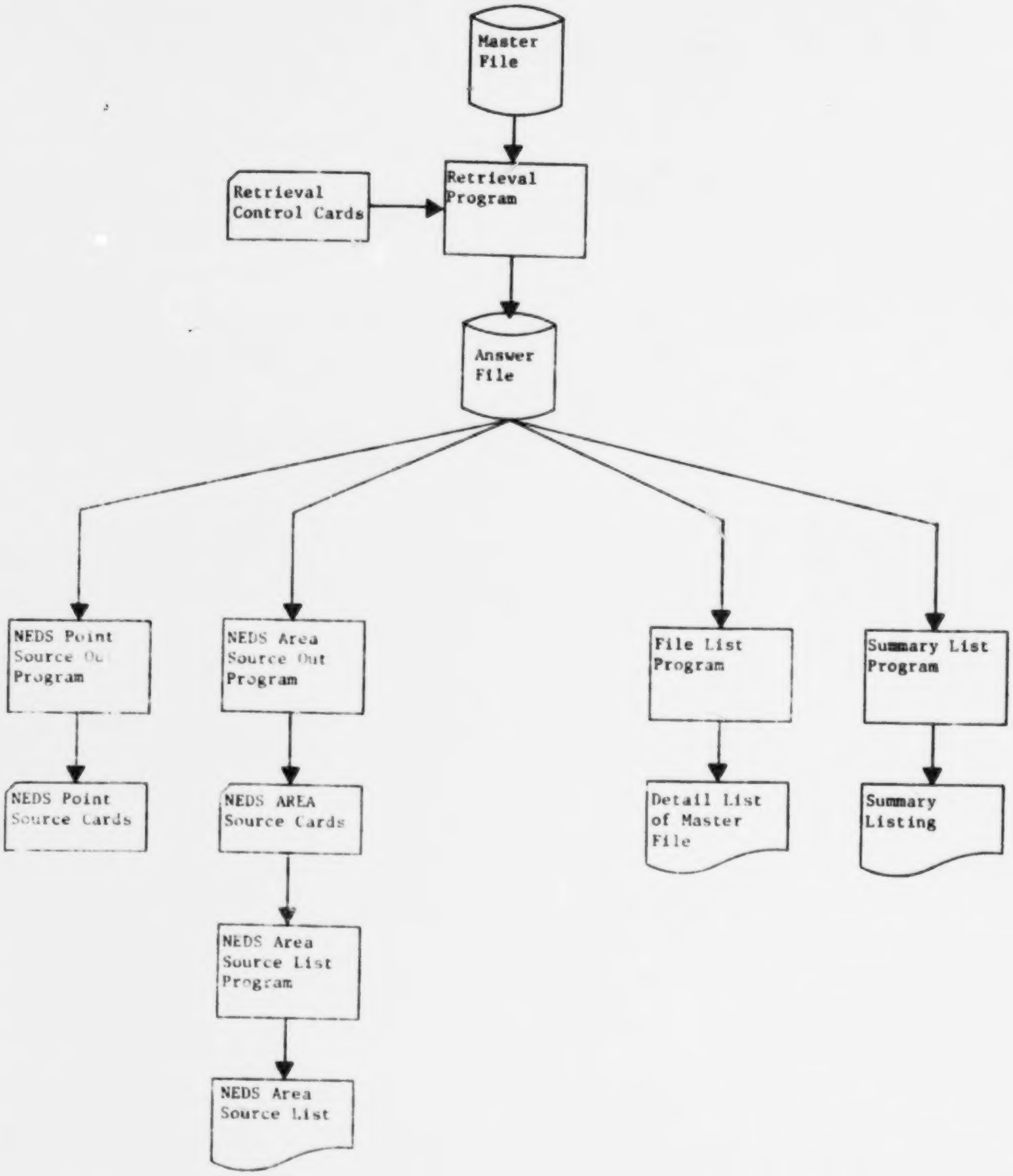
- NEDS Point Source Conversion - This program converts NEDS Point Source cards to EIS transaction cards.
- NEDS Area Source Conversion - This program converts NEDS Area Source cards to EIS transaction cards.
- Emission Factor Table Generator - This program is used to generate the emission factors table.
- Emission Factor Insertion - This program inserts the emission factors into the (23 card) EIS transactions.
- Emission Factor Transaction Generator - This program generates transaction cards to update emission factors in the Master File.

Figure 2.1-1 illustrates the flow of the EIS system.


NEDS Point Source
NEDS Area Source
Keypunch EIS Input Load Sheet
NEDS Point Source Conversion Program
NEDS Area Source Conversion Program
EIS Transactions
EIS Transactions
Emission Factor Table Generator Program
Emission Factors Table
Emission Factors Insertion Program
EIS Transactions
File Maintenance Program
Master File
Master File

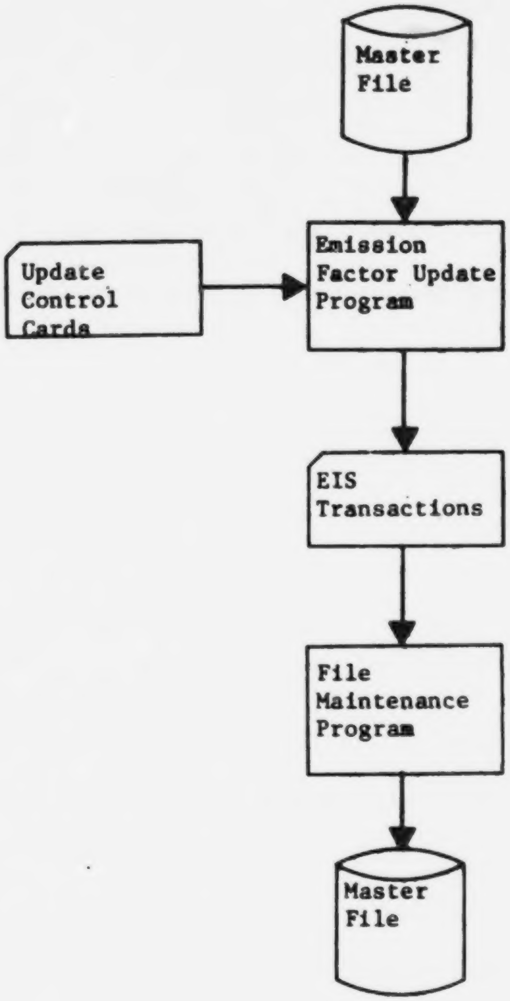
EIS System Flow

Figure 2.1-1


Master File
Retrieval Control Cards
Retrieval Program
Answer File
NEDS Point Source Out Program
NEDS Area Source Out Program
File List Program
Summary List Program
NEDS Point Source Cards
NEDS AREA Source Cards
Detail List of Master File
Summary Listing
NEDS Area Source List Program
NEDS Area Source List

EIS System Flow

Figure 2.1-1 (cont.)


Master File
Update Control Cards
Emission Factor Update Program
EIS Transactions
File Maintenance Program
Master File

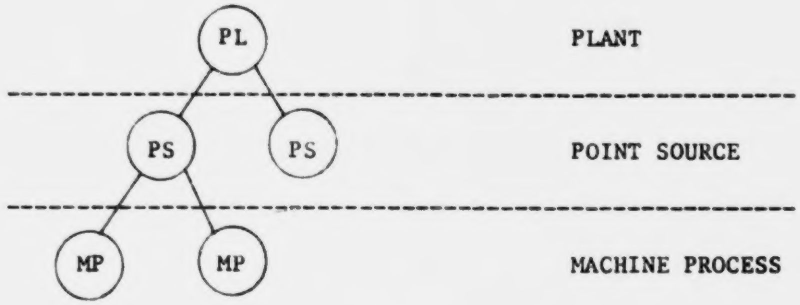
EIS System Flow

Figure 2.1-1 (cont.)

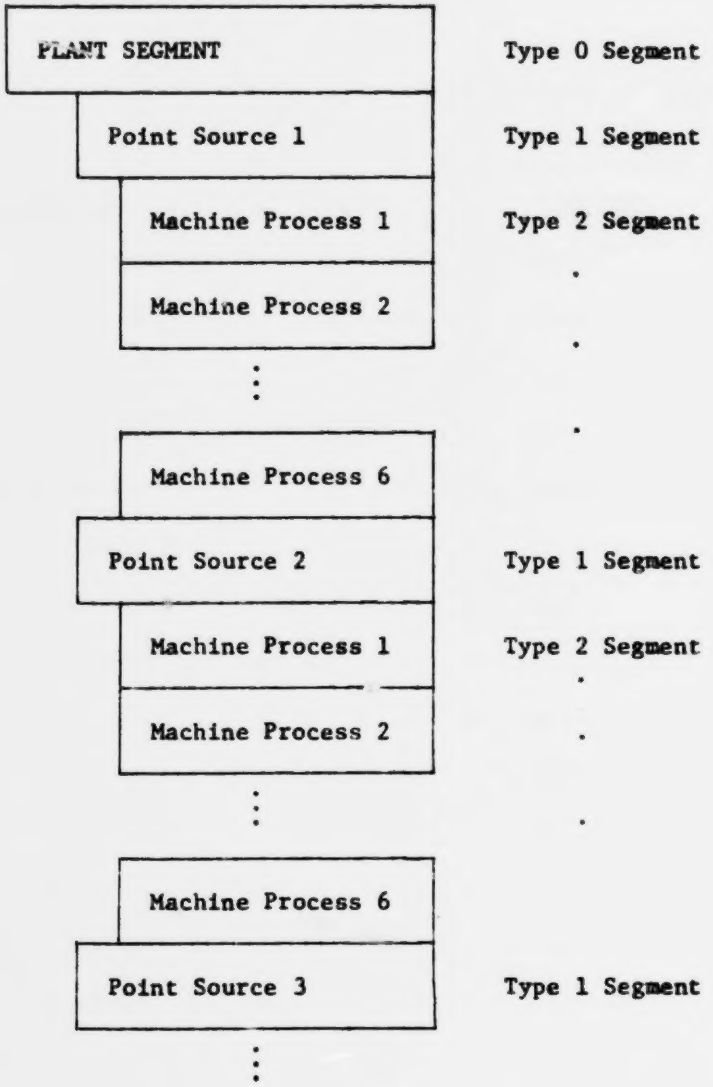
2.2 COMMUNICATION AND DATA FORMATS

2.2.1 MASTER FILE

The EIS master file is a three level hierarchical file with three different segment types. The highest, or master record level segment is called the plant segment. There is no limit to the number of master records allowed on an EIS master file. Subordinate to each master record (plant segment) may be up to 99 point source segments, each describing a different source of pollution (air stack) within the plant described by the plant segment. And subordinate to each point source segment are 1 to 6 machine process segments, each describing a different polluting process or machine feeding into the given point source. Figure 2.2.1-1 illustrates the hierarchical structure of an EIS master record.



The format of each segment type on the master file is illustrated in Figure 2.2.1-2. Each field illustrated relates directly to a field on one of the input transaction cards.


PLANT SEGMENT
Type 0 Segment
Point Source 1
Type 1 Segment
Machine Process 1
Type 2 Segment
Machine Process 2
Machine Process 6
Point Source 2
Type 1 Segment
Machine Process 1
Type 2 Segment
Machine Process 2
Machine Process 6
Point Source 3
Type 1 Segment

- unlimited plant segments (type 0)
- up to 99 point source segments (type 1 subordinate to each plant segment.
- up to 6 machine process segments (type 2) subordinate to each point source

EIS MASTER RECORD STRUCTURE
Figure 2.2.1-1

Fixed (Plant) Segment (Segment 0)

Position	Format		Symbol	Description
1 - 2	xx		Numeric	State Code
3 - 6	xxxx		Numeric	County Code
7 - 9	xxx		Numeric	AQCR Number
10 - 13	xxxx		Numeric	Plant Id
14 - 18	xxxxx	*	Numeric	Date of Segment[1]
19 - 21	xxx	*	Numeric	Segment Id
22 - 24	xxx	*	Alphanumeric	User Control Region
25 - 26	xx	*	Alphanumeric	Local Control
27 - 38	x-x	*	Alphanumeric	User Plant Id
39 - 42	xxxx		Numeric	City
43 - 44	xx		Numeric	UTM Zone
45	A		Alphabetic	Ownership
46 - 60	A-A		Alphabetic	Contact
61 - 70	x-x	*	Alphanumeric	Telephone
71 - 80	x-x	*	Alphanumeric	Principal Product
81 - 128	x-x		Alphanumeric	Name and Address
129 - 132	xxxx	*	Numeric	Number of Employees
133 - 138	xxxxx.x	*	Numeric	Property Area
139 - 186	x-x	*	Alphanumeric	Mailing Address

EIS Master Record Format

Figure 2.2.1-2

Point Source Segment (Segment 1)

Position	Format	Symbol	Description
1 - 2	xx	Numeric	State Code
3 - 6	xxxx	Numeric	County Code
7 - 9	xxx	Numeric	AQCR Number
10 - 13	xxxx	Numeric	Plant Id
14 - 18	xxxxx	* Numeric	Date of Segment[1]
19	x	* Numeric	Segment Id
20 - 21	xx	Numeric	Segment Id Sequence
22 - 23	xx	Numeric	Point Id (NEDS)
24 - 26	xxx	* Alphanumeric	Point Id (User)
27 - 30	xxxx	Numeric	SIC Code
31 - 32	xx	Numeric	IPP Code
33 - 36	xxx.x	Numeric	UTM Horizontal Coordinates
37 - 41	xxxx.x	Numeric	UTM Vertical Coordinates
42 - 47	x-x	* Numeric	Latitude
48 - 54	x-x	* Numeric	Longitude
55 - 62	x-x	Numeric	Annual Throughput
63 - 67	xxxxx	Numeric	Normal Operating
68 - 72	xxxxx	Numeric	Boiler Design Capacity
73 - 75	xx.x	Numeric	Space Heat
76 - 79	xxxx	Numeric	Stack Height
80 - 82	xx.x	Numeric	Stack Diameter
83 - 86	xxxx	Numeric	Stack Temperature

EIS Master Record Format

Figure 2.2.1-2 (Continued)

Position	Format		Symbol	Description
87 - 93	x-x		Numeric	Exhaust Flow Rate
94 - 98	xxxxx	*	Numeric	Velocity
99 - 102	xxxx		Numeric	Plume-Height
103 - 106	xxxx		Numeric	Points with Common Stack
107	x		Numeric	Compliance Status
108 - 111	xxxx		Numeric	Compliance Schedule
112 - 117	x-x		Numeric	Compliance Update
118	x		Numeric	ECAP
119 - 130	x-x		Numeric	Control Regulations
131 - 132	xx		Numeric	Number of Pollutants[2]
133 - 137	xxxxx	*	Numeric	Pollutant Id
137 - 144	xxxxx.xx	*	Numeric	Control Equipment Cost
145 - 147	xxx		Numeric	Primary Control Equipment
148 - 150	xxx		Numeric	Secondary Control Equipment
151 - 153	xx.x		Numeric	Estimated Control Efficiency
154 - 160	x-x		Numeric	Emissions Estimate
161 - 167	x-x	*	Numeric	Emissions Measured
168 - 174	x-x		Numeric	Allowable Emissions
175	x	*	Numeric	Emission Units
176	x		Numeric	Estimation Method
177	x	*	Numeric	Test Method

Note: Positions 133 - 177 may be repeated up to 15 times to allow for 16 pollutants from a single source. The Number of Pollutants field determines the number of repetitions.

EIS Master Record Format

Figure 2.2.1-2 (Continued)

Position	Format		Symbol	Description
87 - 93	x-x		Numeric	Exhaust Flow Rate
94 - 98	xxxxx	*	Numeric	Velocity
99 - 102	xxxx		Numeric	Plume-Height
103 - 106	xxxx		Numeric	Points with Common Stack
107	x		Numeric	Compliance Status
108 - 111	xxxx		Numeric	Compliance Schedule
112 - 117	x-x		Numeric	Compliance Update
118	x		Numeric	ECAP
119 - 130	x-x		Numeric	Control Regulations
131 - 132	xx		Numeric	Number of Pollutants[2]
133 - 137	xxxxx	*	Numeric	Pollutant Id
137 - 144	xxxxx.xx	*	Numeric	Control Equipment Cost
145 - 147	xxx		Numeric	Primary Control Equipment
148 - 150	xxx		Numeric	Secondary Control Equipment
151 - 153	xx.x		Numeric	Estimated Control Efficiency
154 - 160	x-x		Numeric	Emissions Estimate
161 - 167	x-x	*	Numeric	Emissions Measured
168 - 174	x-x		Numeric	Allowable Emissions
175	x	*	Numeric	Emission Units
176	x		Numeric	Estimation Method
177	x	*	Numeric	Test Method

Note: Positions 133 - 177 may be repeated up to 15 times to allow for 16 pollutants from a single source. The Number of Pollutants field determines the number of repetitions.

EIS Master Record Format

Figure 2.2.1-2 (Continued)

Machine Process Segment (Segment 2)

Position	Format		Symbol	Description
1 - 2	xx		Numeric	State Code
3 - 6	xxxx		Numeric	County Code
7 - 9	xxx		Numeric	AQCR Number
10 - 13	xxxx		Numeric	Plant Id
14 - 18	xxxxx	*	Numeric	Date of Segment[1]
19	x	*	Numeric	Segment Id
20 - 21	xx		Numeric	Segment 1 Id
22 - 23	xx	*	Numeric	Segment 2 Id
24 - 31	x-x		Numeric	SCC Code
32 - 36	xxxxx	*	Numeric	BEC Code
37	x	*	Numeric	Fuel Units
38 - 44	x-x		Numeric	Fuel, Process, Solid Waste
45 - 51	xxxx.xxx		Numeric	Maximum Design
52 - 54	x.xx		Numeric	Sulfur Content
55 - 57	xx.x		Numeric	Ash Content
58 - 62	xxxxx		Numeric	Heat Content
63	x		Numeric	Confidentiality of Data
64	A		Alphabetic	Source Code
65 - 89	x-x		Alphanumeric	Source Description
90	x	*	Alphabetic	Emission Factor Source
91 - 92	xx	*	Numeric	Number of Emission Factors[2]
93 - 97	xxxxx	*	Numeric	Pollutant Id

EIS Master Record Format

Figure 2.2.1-2 (Continued)

Position	Format	Symbol	Description
98 - 106	xxxxxx.xxx	* Numeric	Emission Factor
107	A	* Alphabetic	Ash/Sulfur Code
108	x	* Numeric	Emission Factor Units

Note: Positions 93-108 may be repeated up to 15 times to allow for 16 emission factors per process. The number of Emission Factors field determines the number of repetitions.

* Not part of NEDS point source file.

1 Only year portion of date obtained from NEDS point source file. Remainder of field filled with zeroes.

2 Determined by File Maintenance program.

EIS Master Record Format

Figure 2.2.1-2 (Continued)

2.2.2 TRANSACTION RECORDS

The master file is constructed from the information contained on the EIS input transaction cards. There are three classes (or types) of cards: a zero card, a one card and a two card. The zero card contains general identification for the plant or source; the one card contains information relative to specific emission points within a source; the two card contains fuel and process information. The following paragraphs explain the contents of each field on the transaction cards. Figure 2.2.2-1 illustrates the format of the cards. The same formats are used to enter both point source data and area source data. However, the meanings of some fields will be changed when area source data is to be entered.

Card Columns 1-18 of all Cards (Key)

CC	Format	Symbol	Description
1 - 2	xx	Numeric Code	State Code
3 - 6	xxxx	Numeric Code	County Code
7 - 9	xxx	Numeric Code	AQCR Number
10 - 13	xxxx	Numeric Code	Plant Id
14 - 18	xxxxx	Numeric	Date of Record

Card 01 - Plant Identification

CC	Format	Symbol	Description
19 - 21	xxx	Alphanumeric Code	Control Region
22 - 23	xx	Alphanumeric Code	Local Control
24 - 35	x-x	Alphanumeric Code	Plant Id
36 - 39	xxxx	Numeric Code	City
40 - 41	xx	Numeric Code	UTM ZONE
42	A	Alphabetic Code	Ownership
43 - 57	A-A	Alphabetic	Contact
58 - 67	x-x	Alphanumeric	Telephone
68 - 77	x-x	Alphanumeric	Principal Product
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1

Card 02 - Plant Identification

CC	Format	Symbol	Description
19 - 66	x-x	Alphanumeric	Name and Address
67 - 70	x-x	Numeric	Number of Employees
71 - 76	xxxxx.x	Numeric	Property Area
77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

Card 03 - Plant Identification

CC	Format	Symbol	Description
19 - 66	x-x	Alphanumeric	Mailing Address
67 - 77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1 (Cont.)

Card 11 - Point Source Parameters

CC	Format	Symbol	Description
19 - 20	xx	Numeric	Segment ID
21 - 22	xx	Numeric	Point Id (NEDS)
23 - 25	xxx	Alphanumeric	Point Id (Local)
26 - 29	xxxx	Numeric	SIC Code
30 - 31	xx	Numeric	IPP Code
32 - 35	xxx.x	Numeric	UTM Horizontal Coordinates
36 - 40	xxxx.x	Numeric	UTM Vertical Coordinates
41 - 46	x-x	Numeric	Latitude
47 - 53	x-x	Numeric	Longitude
54 - 61	x-x	Numeric	% Annual Throughput
62 - 66	xxxxx	Numeric	Normal Operating
67 - 71	xxxxx	Numeric	Boiler Design Capacity
72 - 74	xx.x	Numeric	Space Heat %
75 - 77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1 (cont.)

Card 12 - Point Source Parameters

CC	Format	Symbol	Description
19 - 20	xx	Numeric	Segment ID
21 - 24	xxxx	Numeric	Stack Height
25 - 27	xx.x	Numeric	Stack Equivalent Diameter
28 - 31	xxxx	Numeric	Stack Temperature
32 - 38	x-x	Numeric	Exhaust Flow Rate
39 - 43	xxxxx	Numeric	Velocity
44 - 47	xxxx	Numeric	Plume Height
48 - 51	xxxx	Numeric	Points with Common Stack
52	x	Numeric	Compliance Status
53 - 56	xxxx	Numeric	Compliance Schedule
57 - 62	xxxxxx	Numeric	Compliance Update
63	x	Numeric	ECAP
64 - 75	x-x	Numeric	Control Regulations
76 - 77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1 (cont.)

Card 13 - Point Source Parameters

CC	Format	Symbol	Description
19 - 20	xx	Numeric	Segment ID
21 - 25	xxxxx	Numeric	Pollutant ID
26 - 32	xxxxxx.xx	Numeric	Control Equipment Cost
33 - 35	xxx	Numeric	Primary Control Equipment
36 - 38	xxx	Numeric	Secondary Control Equipment
39 - 41	xx.x	Numeric	Estimated Control Efficiency
42 - 48	xxxxxxxx	Numeric	Emissions Estimate
49 - 55	xxxxxxxx	Numeric	Emissions Measured
56 - 62	xxxxxxxx	Numeric	Allowable Emissions
63	x	Numeric	Emission Units
64	x	Numeric	Estimation Method
65	x	Numeric	Test Method
66 - 77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1 (cont.)

Card 21 - Fuel, Process Parameters

CC	Format	Symbol	Description
19 - 20	xx	Numeric	Segment 1 ID
21 - 22	xx	Numeric	Segment 2 ID
23 - 30	x-x	Numeric Code	SCC Code
31 - 35	xxxxx	Numeric Code	BEC Code
36	x	Numeric Code	Fuel Units
37 - 43	xxxxxxx	Numeric	Fuel, Process, Solid Waste
44 - 50	xxxxx.xxx	Numeric	Maximum Design
51 - 53	x.xx	Numeric	Sulfer Content
54 - 56	xx.x	Numeric	Ash Content
57 - 61	xxxxx	Numeric	Heat Content
62 - 77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1 (cont.)

Card 22 - Fuel, Process Parameters

CC	Format	Symbol	Description
19 - 20	xx	Numeric	Segment 1 ID
21 - 22	xx	Numeric	Segment 2 ID
23	x	Numeric	Confidentiality of data
24	x	Alphabetic	Source Code
25 - 49	x-x	Alphanumeric	Source Description
50	x	Alphabetic	Emission Factor Source
51 - 77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1 (cont.)

Card 23 - Fuel, Process Parameters

CC	Format	Symbol	Description
19 - 20	xx	Numeric	Segment 1 ID
21 - 22	xx	Numeric	Segment 2 ID
23 - 27	xxxxx	Numeric	Pollutant ID Code
28 - 36	xxxxxxx.xxx	Numeric	Emission Factor
37	x	Alphabetic Code	Ash/Sulfur Code
38	x	Numeric Code	Emission Factor Units
39 - 54			Repeat CC 23 - 38
55 - 70			Repeat CC 23 - 38
71 - 77			Not Used
78 - 79	xx	Numeric	Card Number
80	x	Alphabetic Code	Transaction Code

EIS TRANSACTION CARDS

Figure 2.2.2-1 (cont.)

- Card Columns 1-18 of all cards:

1. State Code: State identification number as defined by the SAROAD air quality numbering system.

2. County Code: Codes to be used are listed in the SAROAD Station Coding Manual for Aerometric Sampling Networks, Publication No. APTD-0907 of the Environmental Protection Agency.

3. AQCR Number: Number for the Air Quality Control Region in which the Plant is located.

4. Plant ID: This field identifies each source in a county. The numbering system is sequential, starting with the number one and continuing until all facilities containing point sources that are located in a given county are assigned a number.

5. Date of Record: The Julian date for the data recorded on the card. The format for this field is YYDDD.

- **Card 01**

1. Control Region: A user defined field to identify state or county control areas.

2. Local Control: A user defined field to identify plants that are physically in one control region but have control responsibility in another region.

3. Plant ID: A user defined field to be used if the local identification conventions differ from NEDS.

4. City: The four-digit SAROAD code number corresponding to the city in which the source is located. There are a few cities in the United States that are not considered to be inside any county but are considered independent entities. In such cases, enter the city code in both the City and County Code fields.

5. UTM Zone: The zone number must be known in order to locate the point source via the UTM coordinate system; this number is found on all USGS maps showing UTM coordinates. Although most states are within a single UTM zone, a few states and counties are in two UTM zones. For this reason a UTM zone number is required for each record.

6. Ownership: A single alphabetic character ownership code. The code should be selected from the following list:

Symbol	Ownership
P	Private
L	Local Government
S	State Government
F	Federal Government
U	Utility

7. Contact: The last name of the person responsible for pollution control activity at the source. If the responsible individual is not identifiable, then record a descriptive and appropriate title.

8. Telephone: The area code and telephone number of the person to be contacted should be entered in this field.

9. Principal Product: A brief description of the principal product produced by this plant.

10. Card Number: 01

11. Transaction Code: The transaction codes are:

A - Add

C - Change

D - Delete.

- **Card 02**

1. Name and Address: Provide a descriptive name for the facility and a usable mailing address. Use common abbreviations as much as possible. The address should include a street number, city and a zip code. The zip code should appear in the last five positions of the field.

2. Number of Employees: Record the number of persons actually working at this location.

3. Property Area: The area, to the nearest tenth acre, of the land occupied by the facility.

4. Card Number: 02

5. Transaction Code: The transaction codes are:

   A - Add
   C - Change
   D - Delete.

- **Card 03**

1. Mailing Address: The address of the person to contact if it is different than the establishment name and address.

2. Card Number: 03.

3. Transaction Code: The transaction codes are:

    A - Add

    C - Change

    D - Delete.

- **Card 11**

1. Segment ID: Each point source set (11, 12, and a 13 card) creates a point source segment in the master file. Each point source segment under the same facility segment must have a unique segment ID number. This number must also be used to reference a particular segment when making a change or deleting a segment.

2. Point ID (NEDS): This is a sequential number designated for each pollutant discharge point within the facility.

3. Point ID (Local): This is a field for a user defined point source identification when the NEDS Point Id is not sufficient to show local control.

4. SIC code: This information is necessary to use the source data for modeling air quality. Enter the appropriate Standard Industrial Classification code.

5. IPP code: This column should be completed with the standard process code.

6. UTM Horizontal and Vertical Coordinates: The UTM coordinate system is another means of identifying the location of the point source. Coordinates are obtained from USGS maps or their equivalent with scales less than 1:62,500. All spaces in these columns must be filled in with numbers and zeros. Accuracy to 0.1 kilometer accuracy is desired.

7. Latitude and Longitude: This is an alternate means of identifying the location of the point source. Coordinates may be obtained from USGS maps or their equivalent.

8. % Annual Throughput: The annual production, consumption, throughput, or other valid number representing the operating of the source should be proportionally divided into the four 3-month categories listed below. The wieghted portion of production occurring in each category is reported as a percentage of total annual throughput. The field is divided into four equal subfields of two numbers each. The first two positions are for December through February. The next two are for March through May. The next two are for June through August. The last two are for September through November.

9. Normal Operating: The hours per day, days per week, and weeks per year that the source operates under normal and usual conditions should be entered here.

10. Boiler Design Capacity: Numerical values in this field should be entered if the boiler burns fuel to heat water or steam, or if it is normally sold according to the heating capacity (BTU per hour). Units are in millions of BTU per hour based on the maximum capacity or design of the boiler.

11. Space Heat %: An estimate of the percent of total fuel used for space heating at the plant should be entered here. If no fuel is used for space heating, enter zeros in this field.

12. Card Number: 11

13. Transaction Code: The transaction codes are:

    A - Add

    C - Change

    D - Delete

- Card 12

1. Segment ID: Enter the same number as in the Segment ID of the 11 card.

2. Stack Height: If the exact location of the discharge of pollutants is well defined there will be a stack or some other enclosed, constrained, or physically-bounded area where pollutants are emitted. In such instances, the stack height is the vertical distance between the point of emission and ground level. If no stack can be identified or there is a changing locus of emissions within the facility then complete only the Plume Height field and leave the rest of the stack data blank.

3. Stack Equivalent Diameter: The stack diameter is the inside diameter of a round gas exit at the point of emission; for non-round exits, it is an equivalent diameter calculated from the cross-sectional area at point of discharge. Using a measured or estimated cross-sectional area, the equivalent diameter (De) is calculated as follows:

$$De = 1.128 \sqrt{A}$$

where A is in square feet.

4. Stack Temperature: The temperature of the exhaust stream at the stack exit should be reported in degrees Fahrenheit under normal operating conditions. If measured temperatures are not available, an estimate to the nearest 50°F should be made.

5. Exhaust Flow Rate: This number should be specified by recording the design or maximum exhaust-gas volume unless actual measurements are available. Units are actual cubic feet per minute and represent the total volume of exhaust gas released at the operating temperature of the stack (assume gas pressure is the same as normal atmospheric pressure).

6. Velocity: This number should be specified by recording the design or maximum exhaust-gas velocity unless actual measurements are available. Units are feet per minute.

7. Plume Height: This field is to be filled in if the previous fields on stack data are all blank. The plume height is a gross estimate and is used only when the source has no definable stack.

8. Points with Common Stack: Columns 48 and 49 contain the NEDS Point ID of the first point source discharging through the stack. Columns 50 and 51 contain the NEDS Point ID of the last point source discharging through the stack. For a complete definition of common stack see EPA publication APTD-1135, Guide For Compiling A Comprehensive Emission Inventory, for March 1973.

9. Compliance Status: One of the following codes must be selected to record the present status of the source under existing legal requirements:

Code	
1	Source is in compliance with the most stringent air pollution control requirements.
2	Source is not in compliance with existing legislation and no variance has been given.
3	Source is not in compliance with existing legislation but a variance has been given.
4	Compliance status is unknown.

10. Compliance Schedule: If the compliance status code is 2 or 3, enter the year and month by which this source must be in compliance.

11. Compliance Update: The day, month, and year of the most recent change in compliance status for the source be entered in this field. Leave the field blank if compliance status has been reported as unknown (code 4). If the source is in compliance with existing air pollution control legislation, then record the record the time that such legislation was enacted.

12. ECAP: Certain point sources are required to submit to government agencies on Emergency Control Action Program

that specifies a detailed plan for immediately reducing emissions whenever air pollution in an area is considered an emergency condition. The following list shall be used to denote whether or not an ECAP has been submitted to an appropriate government agency. Leave blank if status is unknown.

0	ECAP is not required
1	ECAP is required but has not been submitted
2	ECAP has been submitted.

13. Control Regulations: This field is used to identify air pollution control regulations that are in effect and apply to the source.

14. Card Number: 12

15. Transaction Code: The transaction codes are:

    A - Add
    C - Change
    D - Delete

- Card 13

1. Segment ID: Enter the same number as in the Segment Id of the 11 card.

2. Pollutant ID: This field is a five digit code that represents the pollutants whose emissions are being measured. Source is SAROAD Parameter Coding Manual, EPA Publication No. APTD-0633.

3. Control Equipment Cost: Enter the annual cost of maintenance and operation of pollution control equipment.

4. Primary Control Equipment: This field should be completed with the Control Equipment Identification Code. Only control devices that reduce the uncontrolled emission normally associated with the specific source process should be reported.

5. Secondary Control Equipment: If there is an additional control device installed for this pollutant enter the Control Equipment Identification Code in this field.

6. Estimated Control Efficiency: The overall collection efficiencies in weight percent of all control equipment at the point source should be entered. Assume that the pollutant load entering the control equipment is the normal, uncontrolled quantity for that specific process.

7. Emissions Estimate: The annual, controlled emissions from the point source, in tons per year, should be entered here. These calculations should include the effect of pollutant removal by installed control equipment.

8. Emissions Measured: The annual, controlled emissions from the point source, in tons per year, as actually measured by test equipment should be entered here. These measurements can be compared against the estimates to check the validity of the emission factors.

9. Allowable Emissions: Entered here should be the maximum emissions, in tons per year, that the source is legally allowed to discharge into the atmosphere.

10. Emission Units: This field is for future expansion of the system. It will eventually allow the user to specify units for the emissions in other than NEDS units. It is currently ignored by the system.

11. Estimation Method: The following code list must be used to specify the method used to ascertain the estimated emissions:

Code	Description of Method
0	Not applicable (if emissions are negligible)
1	Stack-test results or other emission measurement
2	Material balance using engineering knowledge and expertise of process
3	Emission calculated using emission factors
4	Guess

If code 3 is used the file maintenance program will calculate the estimated emissions if all the factors are present.

12. Test Method: A user defined code to indicate the method used to ascertain the measured emissions.

13. Card Number: 13

14. Transaction Code: The transaction codes are:

A - Add
C - Change
D - Delete.

- **Card 21**

1. Segment 1 ID: Enter the same number as in the Segment ID of the 11 card for the point source to which this segment belongs.

2. Segment 2 ID: Each Fuel-Process set (21,22,23) creates a Fuel-Process segment in the master file. Each Fuel-Process segment under the same point source segment must have a unique Segment 2 ID number. This number must also be used to reference a particular segment when making a change or deleting a segment.

3. SCC Code: The Source Classification Code process description that most nearly describes the process should be entered by its eight-digit numerical code. If the most appropriate SCC description appears to be significantly different from the actual process, enter nothing in this field, but enter NEW SCC NEEDED in the Source Description field of the 22 card.

4. BEC Code: Enter the Basic Equipment Classification Code that describes the equipment or process for this source. The last two digits are used to sequentially number identical units at the same source.

5. **Fuel Units:** This field is for future expansion of the system. It will eventually allow the user to specify units for the fuel-process field in other than NEDS units. It is currently ignored by the system.

6. **Fuel, Process, Solid Waste:** The annual figures will be reported in this field using the units associated with the SCC code for this process.

7. **Maximum Design:** The maximum hourly design rate of the most important process equipment, or the upper operating limit that generally would not be exceeded in normal practice, should be entered here. Units are expressed in those corresponding to the SCC for the process.

8. **Sulfur and Ash Content:** Entries are to be made in these columns for all combustion processes. If the process does not burn fuel, leave the field blank.

9. **Heat Content:** This field is to be completed only when the process involves combustion. Units are millions of BTU per SCC.

10. **Card Number:** 21

11. **Transaction Code:** **The transaction codes are:**

- **A - Add**
- **C - Change**
- **D - Delete.**

- **Card 22**

1. Segment 1 ID: Enter the same number as on the Segment 1 ID of the 21 card.

2. Segment 2 ID: Enter the same number as on the Segment 2 ID of the 21 card.

3. Confidentiality of Data: Process information occasionally is collected by a government agency under a guarantee that the data will be treated in a confidential manner and will not be released to the public. This column indicates whether or not any data for this source are officially considered confidential. A one (1) indicates confidential classification, a two (2) no classifiaction and a blank indicates an unknown status.

4. Source Code: this is needed for NEDS reporting. Enter the following codes for the process category: B - Boiler, P - Process, C - Other Combustion unit.

5. Source Description: Enter a brief description of the source or comments as needed.

6. Emission Factor Source: If this field contains a T the Emission Factors insertion program will insert the appropriate Emission Factors from a table of SCC codes.

7. Card Number: 22

8. Transaction Code: The transaction codes are:

    A - Add

    C - Change

    D - Delete.

- Card 23

1. Segment 1 ID: Enter the same number as in the Segment 1 ID of the 21 card.

2. Segment 2 ID: Enter the same number as in the Segment 2 ID of the 21 card.

3. Pollutant ID Code: This field is a five digit code that represents the pollutant whose emissions are being measured. Source is SAROAD Parameter Coding Manual, EPA Publication No. APTD-0633.

4. Emission Factor: The emission factor is a statistical average of the rate at which a pollutant is released to the atmosphere as a result of some activity, such as combustion or industrial production, divided by the level of that activity. The emission factors for each SCC may be found in the EPA publication Compilation of Air Pollutant Emission Factors, Publication No. AP-42.

5. Ash/Sulfur Code: This code indicates whether or not the Ash or Sulfur percentage is to be used in the calculation of the estimated emissions. The codes are: A - Ash, S - Sulfur and blank is neither apply.

6. Emission Factor Units: This field is for future expansion. Eventually it will indicate the units in which the emission

factors are expressed. The emission factors are now treated as standard NEDS units. Reference OAP Publication No. AP-42.

7. Card Number: 23

8. Transaction Code: The transaction codes are:

   A - Add

   C - Change

   D - Delete.

Note: Card columns 23 to 38 may be repeated two more times on the same 23 card. This allows the storing of up to three sets of emission factors information on each card.

3.0 FILE MAINTENANCE AND RETRIEVAL

There are two major EIS programs for building, maintaining and retrieving data from the EIS master file. These are the File Maintenance program and the Retrieval program.

3.1 FILE MAINTENANCE

The File Maintenance program performs two basic functions, the creation of a new system master file and the modification of an existing system master file. The program can operate in any of three modes to support the two basic functions. These modes are add, change and delete. Every transaction card input to the file maintenance program must be either an add, change or delete card, identified by an A, C or D in column 80.

Add cards are used to create a new system master file, and to add new records to an existing file. Add cards are always entered in logical segment groupings. Thus, a type 0 segment must be added as a complete entity of one 01 card, one 02 card and one 03 card. Similarly, a type 1/ type 2 segment combination must be added subordinate to an already existing type 0 segment as a complete entity of one 11 card, one 12 card, one or more 13 cards, and multiple occurrences of one 21 card, one 22 card and one or more 23 cards. A type 2 segment cannot be added by itself. That is, it must be added in conjunction with a type 1 segment. Up to six type 2 segment can exist subordinate to one type 1 segment.

Change and delete cards are used to modify an existing system master file. Any data field specified as non-blank on a change card will replace the corresponding field in the designated file record. Change cards use the same format as add cards except that all data fields except the fields being changed are left blank. Thus any field on any card can be changed except the record key, segment 1 and segment 2 ID's and pollution ID.

Delete cards can be used to delete an entire logical record (type 0 segment and all subordinate type 1 and 2 segments), a type 1 segment (with all subordinate type 2 segments) or a single type 2 segments.

All transaction cards entered into the file maintenance program must be sorted in master file sequence either by the user or by the emission factors insertion program, as the master file is passed only once per run for fast performance.

Add Cards

Records are created or added to the master file using the following combinations of ADD cards. Only those fields with the name filled in are required. All other fields may be blanks. At least the three cards shown in each segment are required to create each segment.

- To add a plant segment (type 0 segment):

KEY	DATE		01	A
KEY			02	A
KEY			03	A
1 13	14 18			

- To add a point source segment (type 1 segment), which is allowed to have subordinate to it up to six machine process segments (type 2 segments):

KEY	DATE	ID			11	A
KEY		ID			12	A
KEY		ID	POLL. ID		13	A
1 13	14 18	19 20	21 25		78 79	80

up to 16 cards

KEY	DATE	ID	ID2		21	A
KEY		ID	ID2		22	A
KEY		ID	ID2	POLL. ID	23	A
1 13	14 18	19 20	21 22	23 27	78 79	80

up to 6
sets with
up to 16
23 cards
per set

Up to 16 unique pollutant ID's are allowed. Thus multiple type 13A and 23A cards are allowed. One, two or three pollutant ID's can be present on any type 23A card. Also, since up to six (there must be at least one) machine process (type 2) segments can be subordinate to any point source (type 1) segment, there can be up to six sets of the 21A/22A/multiple 23A type cards following the last 13A card of each point source segment.

Change Cards

Any record on an existing master file can be changed through the use of a change card. Depending on the segment type being changed, certain fields on the card are required to be filled in. Other than these required fields, any other fields on the card which is non-blank will replace the corresponding field of the indicated record on the master file.

To change a field in a master file record, only the single transaction card which contains that field need be used. For example, assume that the field called COMPLIANCE-STATUS is to be changed. This field is part of the point source (type 1) segment and is included in the type 12 transaction card. Thus only a type 12 change card is required. The types 11 and 13 cards are unnecessary.

The following is the format for each type of change card, with the required fields filled in by name.

- Type 01 change card:

```
|  KEY    |   DATE     |                         |  01 | C |
1       13 14        18                          78 79  80
```

- Type 02 change card:

```
|  KEY    |   DATE     |                         |  02 | C |
1       13 14        18                          78 79  80
```

- Type 03 change card:

```
|  KEY    |   DATE     |                         |  03 | C |
1       13 14        18                          78 79  80
```

- Type 11 change card:

```
|  KEY    |   DATE     |  ID  |                  |  11 | C |
1       13 14        18 19  20                   78 79  80
```

- Type 12 Change card:

```
|  KEY    |   DATE     |  ID  |                  |  12 | C |
1       13 14        18 19  20                   78 79  80
```

- Type 13 change card:

```
|  KEY    |   DATE     |  ID  | POLL. ID  |      |  13 | C |
1       13 14        18 19  20 21       25       78 79  80
```

- Type 21 change card:

```
|  KEY    |   DATE     |  ID  | ID2 |            |  21 | C |
1       13 14        18 19  20 21 22             78 79  80
```

- Type 22 change card:

```
|  KEY    |   DATE     |  ID  | ID2 |            |  22 | C |
1       13 14        18 19  20 21 22             78 79  80
```

- Type 23 change card:

```
|  KEY    |   DATE     |  ID  | ID2 | POLL. ID   |  23 | C |
1       13 14        18 19  20 21 22 23        27 78 79  80
```

Delete Cards

Three segments (or segment combinations) can be seleted from an existing master file. The following cards, with required fields filled in, illustrate how to delete these segments.

- Delete an entire logical record of plant (type 0) segment and all subordinate point source (type 1) and machine process (type 2) segments:

```
|  KEY       |                                      |  01 |  D |
 1         13                                        78 79   80
```

- Delete a point source (type 1) segment and all subordinate machine process (type 2) segments:

```
|  KEY       |             | ID  |                  |  11 |  D |
 1         13               19 20                    78 79   80
```

- Delete a machine process (type 2) segment:

```
|  KEY       |             | ID  |ID2  |            |  21 |  D |
 1         13               19 20 21 22              78 79   80
```

In general, the KEY, IDs, card number and transaction code are required for all types of transactions. In addition, the POLL. ID and DATE are required for adding or changing information in the master file.

3.2 RETRIEVAL

The CDHS retrieval component retrieves data from files based on English-like retrieval statements. The retrieved data records are placed on an answer data set for future processing. The answer data set may be sorted or not depending on the sort specifications.

The functions of the language processor/retriever are:

a. Editing and processing of retrieval and control statements.

b. Compilation of the retrieval logic to produce a COBOL program for actual retrieval.

c. Execution of the COBOL program and the construction of the answer data set containing records qualified for retrieval by the retrieval specification.

3.2.1 RETRIEVAL LANGUAGE AND OPERATORS

The CDHS retrieval language consists of $$ control statements, retrieval statements and sort statements. The statements must be specified in a prescribed order. A retrieval that produces an unsorted answer set requires three control statements. If the answer set is to be sorted an additional control statement is required. The two valid statement sequences are:

a. Unsorted Answer Set

```
$$QUERY
$$IF
     Retrieval Statements
$$END
```

b. Sorted Answer Set

```
$$QUERY
$$SORT
     Sort Statements
$$IF
     Retrieval Statements
$$END
```

QUERY Control Card

The query control indicates the beginning of the set of statements for a retrieval. This card is required and contains four fixed format fields as follows:

Cols 1-7	$$QUERY
Cols 12-13	Major sort key
Cols 16-23	Query name
Col 26	Type 2 Record processing indicator

The major sort key field is used to separate the answer sets from batched retrievals. The batched retrieval feature is not implemented. Therefore, this field may contain blanks or any other two characters.

The query name field contains a one to eight character name that is assigned to the query.

The type 2 record processing indicator field may contain a blank indicating that the type 2 records are to be included with each qualifying record or the letter N indicating that the type 2 records are to be omitted.

SORT Control Card

The sort control card indicates that a sorted answer set is desired. This card is optional and if present contains one fixed format field as follows:

Cols 1-6	$$SORT

Immediately following the sort control cards are from one to five sort specification statements. The sequence of these cards determine the order of the sort minor key. The first card will be the high subfield of the minor key, the next will be the next lower subfield and the last card will be the lowest subfield of the last card will be the lowest subfield of the sort minor key. Each sort statement consists of two fixed format fields as follows:

Col 7-36	Sort name
Col 38-47	Sort order

The sort name field contains the name of a data file field which is to be sorted. This name must be one of the names listed in Table 3.2-1 or 3.2-2.

The sort order field describes the order of sorting the specified field. This field must contain the word ASCENDING or DESCENDING depending on the desired sort order.

For example, if the order of the sort control cards is as follows:

AQCR	ASCENDING
PLANT	DESCENDING
POLLUTANT ID	DESCENDING

The retrieved data will be sorted first by AQCR in ascending order, then by plant in descending order within each AQCR, then by Pollutant ID within each Plant in descending order. The user must visualize how the sort specifications will cause the data to be presented in the requested report as this can make a significant difference in the amount of printout which will result assuming a report is generated.

The following list of names from the fixed segment may be referenced in a retrieval specification statement in either EIS fixed format or COBOL language.

AQCR
CITY
CONTACT
COUNTY
DATE-OF-SEGMENT
LOCAL-CONTROL
NUMBER-OF-EMPLOYEES
OWNER
PLANT-ID
PRINCIPAL-PRODUCT
PROPERTY-AREA
SEGMENT-DAY
SEGMENT-ID
SEGMENT-YEAR
STATE
TELEPHONE
USER-CONTROL-REGION
USER-PLANT-ID
UTM-ZONE

The following two names from the fixed segment may be referenced in a retrieval specification in the COBOL language only.

ESTABLISHMENT
MAILING-ADDRESS

RETRIEVAL NAMES

Table 3.2-1

The following list of names from the point source segment may be referenced in a retrieval specification statement in either EIS fixed format or COBOL language.

ANNUAL-THRUPUT
BOILER-DESIGN-CAPACITY
COMPLIANCE-SCHEDULE
COMPLIANCE-SCHEDULE-MONTH
COMPLIANCE-SCHEDULE-YEAR
COMPLIANCE-STATUS
COMPLIANCE-STATUS-DAY
COMPLIANCE-STATUS-MONTH
COMPLIANCE-STATUS-UPDATE
COMPLIANCE-STATUS-YEAR
CONTROL-REGULATIONS
DAY-WEEK
DEC-FEB
DIAMETER
ECAP

EMISSION-NBR
FLOW-RATE
HEIGHT
HOURS-DAY
IPP

JUN-AUG
LATITUDE
LATITUDE-DEGREE
LATITUDE-MINUTE
LATITUDE-SECOND
LONGITUDE
LONGITUDE-DEGREE
LONGITUDE-MINUTE
LONGITUDE-SECOND
MAR-MAY
NEDS
NORMAL-OPERATING
PLUME
POINT-ID
POINT-SOURCE-DATA
POINTS-PER-STACK
REG-1
REG-2
REG-3
SEP-NOV
SIC

SPACE-HEAT
STACK-DATA
TEMPERATURE
USER
UTM-COORDINATES
UTM-HORIZONTAL
UTM-VERTICAL
VELOCITY
WEEK-YEAR

RETRIEVAL NAMES

Table 3.2-1 (Continued)

The following list of names from the repeating portion of the point source segment may be referenced in a retrieval specification statement in either EIS fixed format or COBOL language.

ALLOWABLE
CNTL-EQUIP-COST
CONTROL-EQUIPMENT
EMISSION-UNITS
EMISSIONS
EST-CONTROL-EFF
ESTIMATES
ESTIMATION-METHOD
MEASURED
POLLUTION-ID
PRIMARY
SECONDARY
TEST-METHOD

REPEATING RETRIEVAL NAMES

Table 3.2-2

IF Control Card

The IF control card indicates the beginning of the retrieval specifications for this query. This card is required and may be in one of three formats.

- IF Format 1.

  This format of the IF control card is as follows:

Cols 1-4	$$IF

The IF format 1 is used when it is desired to state the retrieval specification in EIS fixed format form.

Immediately following the IF format 1 card are the EIS fixed format retrieval specification cards. Each of these cards contain a clause of the retrieval specification where a clause is defined to consist of subject name, a relational operator and an object name. For example, A = B is a clause with A the subject name, = the relational operator and B the object name. A multiple clause retrieval specification, i.e., A = B AND C = D, consists of two clauses A = B, C = D connected by the logical connector AND. The format of fixed format retrieval specification cards is as follows:

Cols 8-6	Left Parenthesis
Cols 7-36	Subject name
Cols 38-39	Relational operator code
Cols 41-74	Object name
Cols 76-78	Logical connector

The left parenthesis field may contain up to four parentheses right justified in the field.

The subject name field must contain one of the data file field names listed in Table 3.2-1 or Table 3.2-2. Any other name will cause a diagnostic.

The relational operator field must contain one of the following codes left justified in the field.

Code	Meaning
=	equal
<	less than
>	greather than
N=	not equal
N<	not less than
N>	not greater than

The object name field may contain one of the data file field names listed in Table 3.2-1 or Table 3.2-2, a numerical literal, or an alphanumeric literal delineated by quotes. If right parentheses are needed to balance any left parentheses they must be placed in the object name field immediately after the last character of the object name.

The logical connector field may contain blanks or the words AND or OR. Blanks in this field terminate the editing of the retrieval specification. The words AND or OR indicate that another clause follows and editing is to continue.

- IF Format 2.

  This format of the IF control card consists of three fixed format fields as follows:

Cols 1-4	$$IF
Cols 10-13	USER
Col 26	Qualification Type

The IF format 2 is used when it is desired to state the retrieval specification in COBOL language.

Immediately following the IF format 2 control cards are one or more cards containing the retrieval specification. These cards are punched according to COBOL rules for syntax and punctuation. The first word on the first card must be IF. Data file field names referenced in the retrieval specification must be one of those listed in Table 3.2-1 or Table 3.2-2. Since the EIS language processor does not examine these cards nay improper punching could result in COBOL diagnostics or unpredictable retrieval.

The qualification type field must be the character Y if the retrieval specification refers to any of the data file field names listed in Table 3.2-2.

- IF Format 3.

  This format of the IF control card consists of four fixed format fields as follows:

Cols 1-4	$$IF
Cols 10-13	USER
Cols 16-23	Library member name
Col 26	Qualification Type

The IF format 3 is used when it is desired to insert a previously written COBOL language retrieval specification statement into a query. The retrieval specification must follow the rules defined for a retrieval specification following an IF format 2 control card. The main difference between IF format 2 and IF format 3 is that for format 2 the retrieval specification is in-line immediately following the IF format 2 control card while for format 3 the retrieval specification is from a user library by means of the member name field.

END Control Card

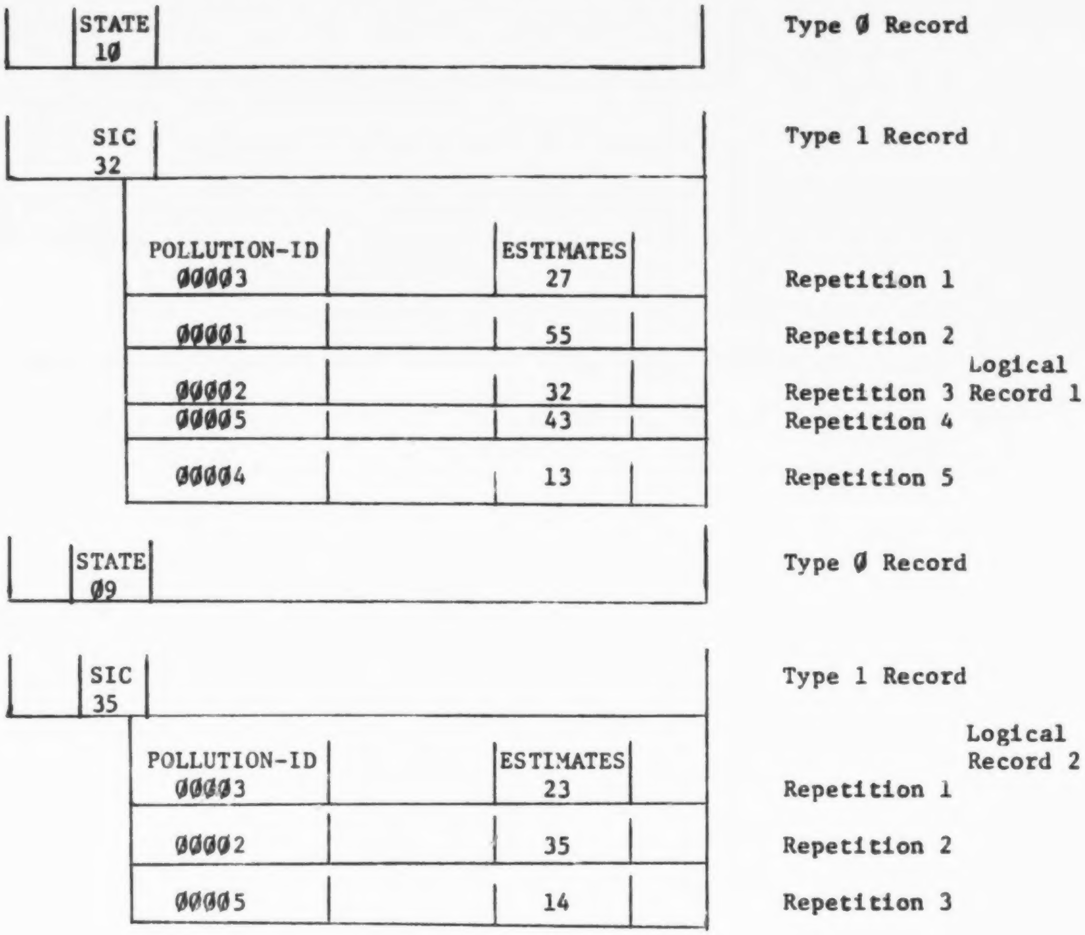
The END control card indicates the end of the set of statements for a retrieval. This card is required and contains $$END in card columns 1-5.

3.2.2 RETRIEVAL LOGIC

The following discussion will illustrate how the retriever processes the logical records of the data file. The processing varies depending on what fields are being used for qualification and whether or not a sort is specified and if so what field is being used for the sort.

For qualification purposes a logical record consists of the fixed segment (type 0 record) and a single point source segment (type 1 record). Qualification cannot be performed on just the fixed segment. The machine process segments (type 2 records) cannot be used for qualification. At the user's option (the N in the query control card) they are either omitted or added to each qualifying logical record.

Assume that the following logical records exist on some data file.


STATE
10
Type 0 Record
SIC
32
Type 1 Record
POLLUTION-ID
00003
ESTIMATES
27
Repetition 1
00001
55
Repetition 2
00002
32
Repetition 3
00005
43
Repetition 4
00004
13
Repetition 5
Logical Record 1
STATE
09
Type 0 Record
SIC
35
Type 1 Record
POLLUTION-ID
00003
ESTIMATES
23
Repetition 1
00002
35
Repetition 2
00005
14
Repetition 3
Logical Record 2

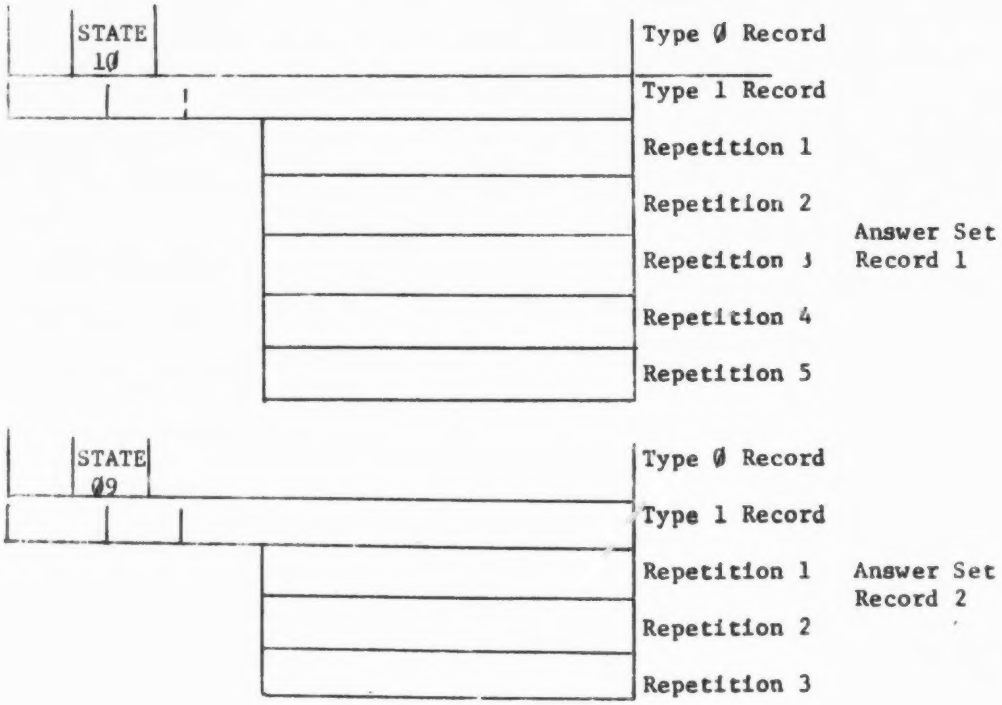
The first logical record has a STATE value of 10, SIC value of 32 and five repetitions containing POLLUTION-ID values of 00001 to 00005 and ESTIMATES of 13 to 27. The second logical record has a STATE value of 09, SIC value of 35 and three repetitions. The following query examples will show how the two logical records will appear on the answer set.

- Example 1

It is desired to qualify all records that have a STATE value of 10 or 09. Sorting is not desired. The query is:

```
$$QUERY        EXAMPLE 1
$$IF       USER
     IF STATE = '10' OR = '09'
$$END
```

The answer set will contain the following two records. Since a sort was not specified the records will be in file order.

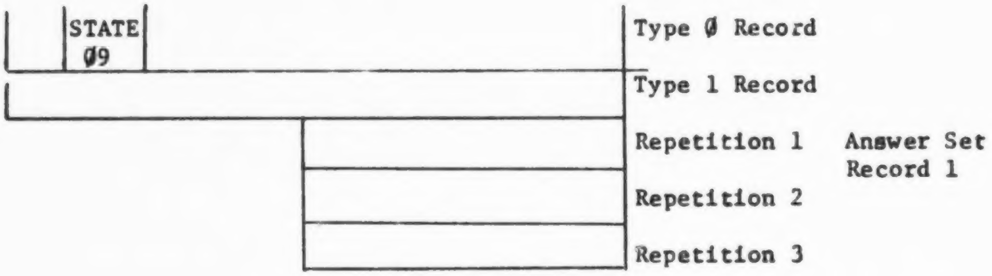

STATE
10
Type 0 Record
Type 1 Record
Repetition 1
Repetition 2
Repetition 3
Repetition 4
Repetition 5
Answer Set
Record 1
STATE
09
Type 0 Record
Type 1 Record
Repetition 1
Repetition 2
Repetition 3
Answer Set
Record 2

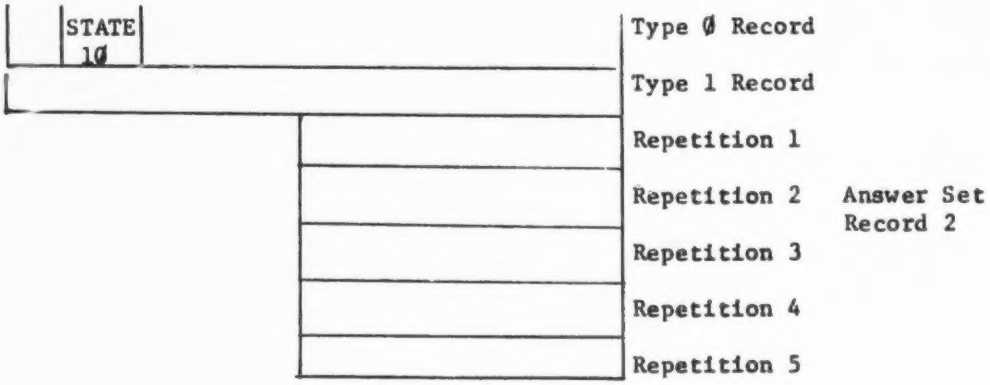
- **Example 2**

It is desired to qualify all records that have a STATE value of 10 or 09 and to sort the qualifying records in ascending order of STATE values. The query is:

```
$$QUERY        EXAMPLE 2
$$SORT
     STATE     ASCENDING
$$IF      USER
     IF STATE = '10' OR = '09'
$$END
```

The answer set will contain the following two records and since a sort was specified to record order is changed.


STATE
09
Type 0 Record
Type 1 Record
Repetition 1
Repetition 2
Repetition 3
Answer Set Record 1

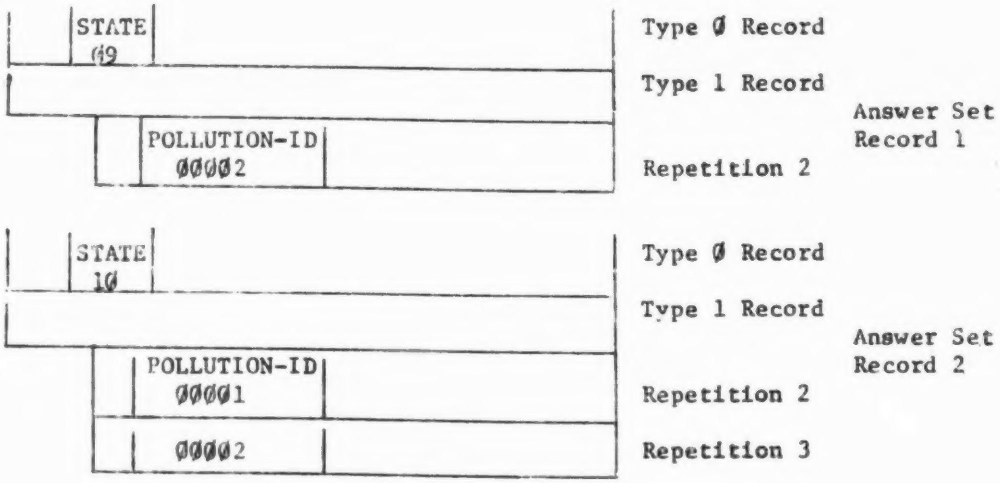

STATE
10
Type 0 Record
Type 1 Record
Repetition 1
Repetition 2
Repetition 3
Repetition 4
Repetition 5
Answer Set Record 2

- Example 3

It is desired to qualify all records that contain a POLLUTION-ID of 00001 or 00002 and to sort the qualifying records in ascending order of STATE values. This query is qualifying on a field in the repetitions data. The retriever cycles through the repetition data and marks those repetitions that meet the qualification. The repetitions that did not qualify are removed. The query for this is:

```
$$QUERY        EXAMPLE 3
$$SORT
     STATE     ASCENDING
$$IF      USER
     IF POLLUTION-ID = '00001' OR = '00002'
```

The answer set will contain the following two records:

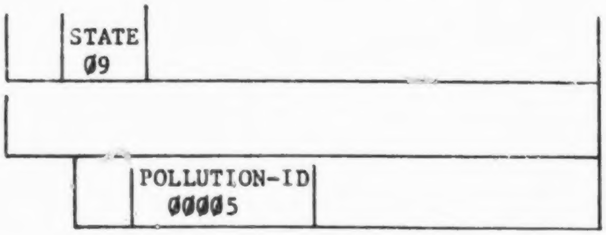

STATE
09
Type 0 Record
Type 1 Record
Answer Set
Record 1
POLLUTION-ID
00002
Repetition 2
STATE
10
Type 0 Record
Type 1 Record
Answer Set
Record 2
POLLUTION-ID
00001
Repetition 2
00002
Repetition 3

- Example 4

It is desired to qualify all records that contain a POLLUTION-ID of 00003 or 00005 and to sort the qualifying records according to POLLUTION-ID for STATE. This query is qualifying on a field in the repetitions data and also sorting on a field in the repetition data. The retriever cycles through the repetition data and for each repetition that meets the qualification outputs a logical record on the answer set. The query is:

```
$$QUERY        EXAMPLE 4
$$SORT
     STATE          ASCENDING
     POLLUTION-ID   DESCENDING
$$IF      USER
     IF POLLUTION-ID = '00003' OR '00005'
$$END
```

The answer set for this query will contain the following four records:

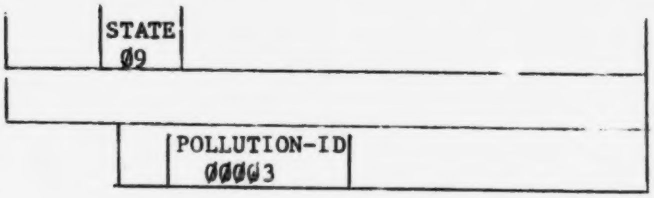


Type 0

Type 1 Record

Answer Set
Record 1

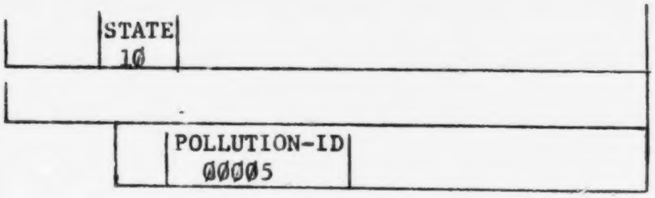
Repetition 3


STATE
09
POLLUTION-ID
00003

Type 0 Record

Type 1 Record Answer Set Record 2

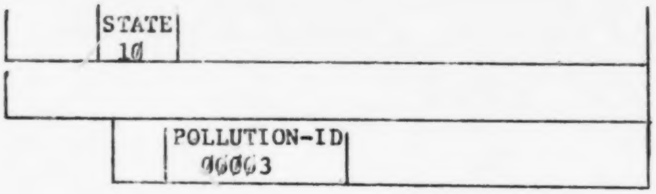
Repetition 1


STATE
10
POLLUTION-ID
00005

Type 0 Record

Type 1 Record Answer Set Record 3

Repetition 4


STATE
10
POLLUTION-ID
00003

Type 0 Record

Type 1 Record Answer Set Record 4

Repetition 1

4.0 OUTPUT PROGRAMS

There are five output programs in the EIS system, each producing a different form of output. These five are the File List, Summary Report, NEDS Point Source, NEDS Area Source, and NEDS Area Source Report output programs.

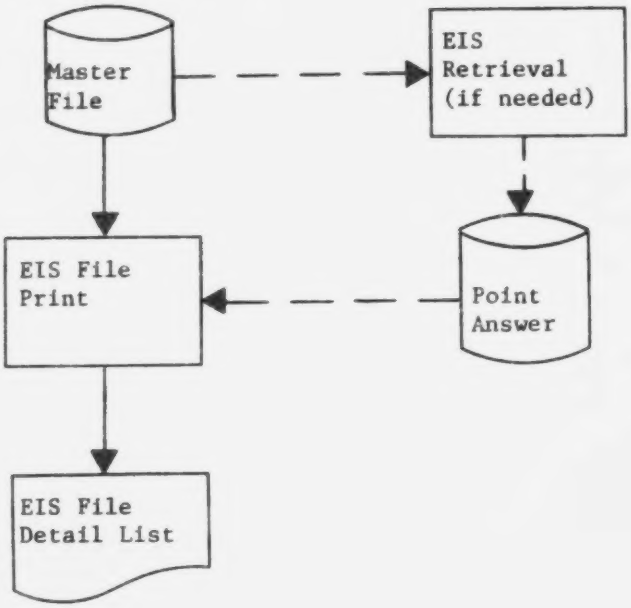
4.1 FILE LIST

This program produces a detail listing of the EIS master file. The master file is listed with one point source record per page. If a single plant location has more than one point source, the plant/location information is repeated for each point source page. If area source data is in the same file as point source, the point source data should be selected by use of the EIS retrieval capability (IF USER-PLANT-ID N = 'AREA SOURCE').

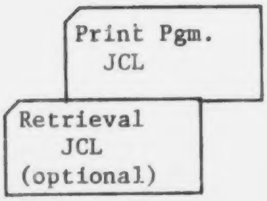
This program can also be used to print a detail listing of all of the retrieval answer files. It will list the area source records but the field headings will be meaningless.

The data flow and run deck setup are illustrated in Figure 4.1-1.

Data Flow


Master File
EIS Retrieval (if needed)
EIS File Print
Point Answer
EIS File Detail List

Deck


Print Pgm. JCL
Retrieval JCL (optional)

FILE LIST DATA FLOW AND DECK

Figure 4.1-1

4.2 SUMMARY REPORT

The EIS Summary capability is intended to be a tool for Air Pollution Control Agencies. It is used with the EIS Retrieval capability, i.e., the retrieval program will select data and sort it in order to produce the summary.

The following data values are summed.

1 - Source Count - This is a sum of sources emitting a pollutant.
2 - Estimated Emissions - This is a sum of estimated emissions.
3 - Actual Emissions - This is a sum of actual (measured) emissions.
4 - Allowable Emissions - This is a sum of allowable (standard) emissions.
5 - Control Equipment Cost - This is a sum of the cost for the control equipment.

A number (any combination of any five data fields in the point and stack data) of summarys can be produced. There can be from one to five levels of totals. These are specified by supplying simple "Move" statements.

Example:

```
MOVE AQCR TO BREAK-ONE
```

The field to be summed is moved into a system control field. There are five such control fields, each corresponding to the five levels of totals. The control fields are:

BREAK-ONE	Lowest level of total
BREAK-TWO	Next higher level
BREAK-THREE	Next higher level
BREAK-FOUR	Next higher level
BREAK-FIVE	Highest level of total

The data must be sorted to correspond to the Summary being produced. This is accomplished by executing the EIS retrieval capability to produce the Summary input data. Note that because emissions are by pollutant, one of the sorts must be pollutant identification to produce a meaningful summary.*

o Example 1:

To produce a summary of emissions by SIC within a county, the following retrieval and summary statements must be provided by the user (retrieval qualifications are not shown).

---

*The only meaningful summary totals are those at the POLLUTION-ID level. If all of the data items are for the same pollutant then all totals are meaningful. If two or more pollutants have been selected, only the totals up to the level for POLLUTION-ID are meaningful. For example, if POLLUTION-ID were at BREAK-THREE level, BREAK-ONE, BREAK-TWO, and BREAK-THREE level sums would be meaningful but BREAK-FOUR and BREAK-FIVE sums would not be meaningful.

Retrieval

```
SORT SIC, COUNTY, POLLUTION-ID
     (major to minor)
```

Summary

```
MOVE MSTR-POLLUTION-ID (EM-SET-INDEX) TO BREAK-ONE.
MOVE MSTR-COUNTY TO BREAK-TWO.
MOVE MSTR-SIC TO BREAK-THREE.
```

- Example 2:

  To produce a summary of emissions by PLANT within SIC within CITY within COUNTY the following retrieval and summary statements must be provided.

Retrieval

```
SORT COUNTY, CITY, SIC, PLANT, POLLUTION-ID
```

Summary

```
MOVE MSTR-POLLUTION-ID (EM-SET-INDEX) to BREAK-ONE.
MOVE MSTR-PLANT TO BREAK-TWO.
MOVE MSTR-SIC TO BREAK-THREE.
MOVE MSTR-CITY TO BREAK-FOUR.
MOVE MSTR-COUNTY TO BREAK-FIVE.
```

The summary report can be personalized, i.e., certain page header and column header information can be provided by the user. This information is provided on control cards. The information can be changed each time the summary is executed.

Control cards for providing information to the summary report are described below.

Card 1

Cols	Content	Default
1-3	OP1	
6-37	Line 1 of Report Title	EMISSIONS INVENTORY SYSTEM
38-69	Line 2 of Report Title	STANDARD SUMMARY OUTPUT
71-78	Date	

Card 2

Cols	Content	Default
1-3	OP2	
6-37	From Organization	AIR POLLUTION CONTROL AGENCY
38-69	To Organization	INFORMATION

Card 3

Cols	Content	Default
1-3	OP3	
6-13	Part 1 of Column 1 Header	BREAK
14-21	Part 2 of Column 1 Header	FIVE
22-29	Part 1 of Column 2 Header	BREAK
30-37	Part 2 of Column 2 Header	FOUR
38-45	Part 1 of Column 3 Header	BREAK
46-53	Part 2 of Column 3 Header	THREE
54-61	Part 1 of Column 4 Header	BREAK
62-69	Part 2 of Column 4 Header	TWO

Card 4

Cols	Content	Default
1-3	OP4	
6-13	Part 1 of Column 5 Header	BREAK
14-21	Part 2 of Column 5 Header	ONE

The Summary Report Control Cards are used to "personalize" this report.

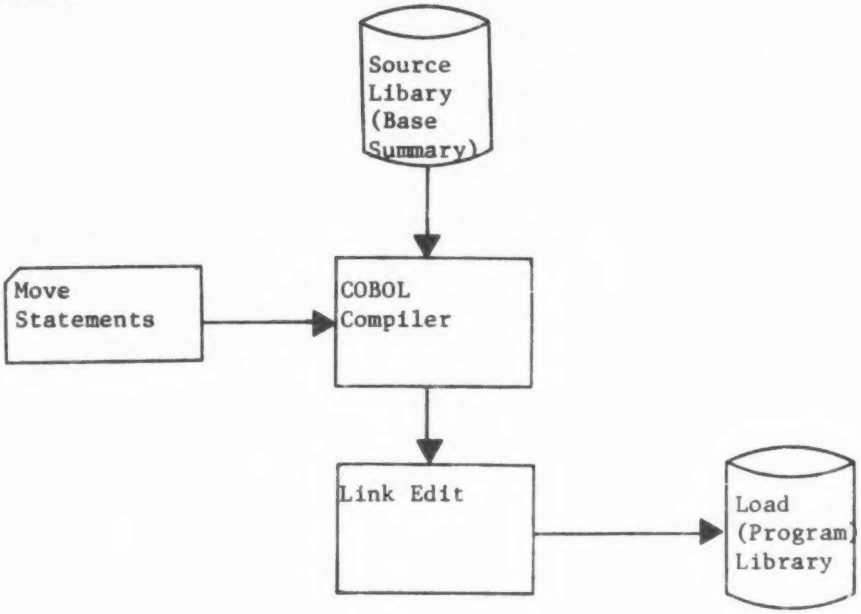
A report header defaults are as follows:

```
                    AIR POLLUTANT EMISSIONS SUMMARY
EMISSIONS INVENTORY SYSTEM           FROM AIR POLLUTION CONTROL AGENCY
STANDARD SUMMARY OUTPUT              TO INFORMATION
BREAK BREAK BREAK BREAK BREAK
FIVE  FOUR  THREE  TWO  ONE
```

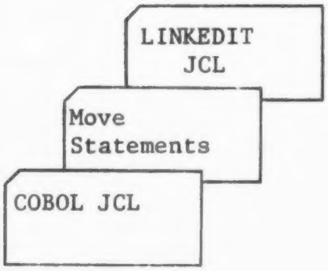
The summary statements (MOVE) are actually compiled into a program and executed. It is this program which reads the control cards (if any) and produces the summary report.

A summary program can be temporary (for ad-hoc reports) or permanent (for standard reports), i.e., the program can be compiled, used and deleted from the system or it can be compiled and stored on a library to be used over and over again. These options are illustrated by figures 4.2-1 through 4.2-3.

Data Flow


Source
Libary
(Base
Summary)
Move
Statements
COBOL
Compiler
Link Edit
Load
(Program)
Library

Deck

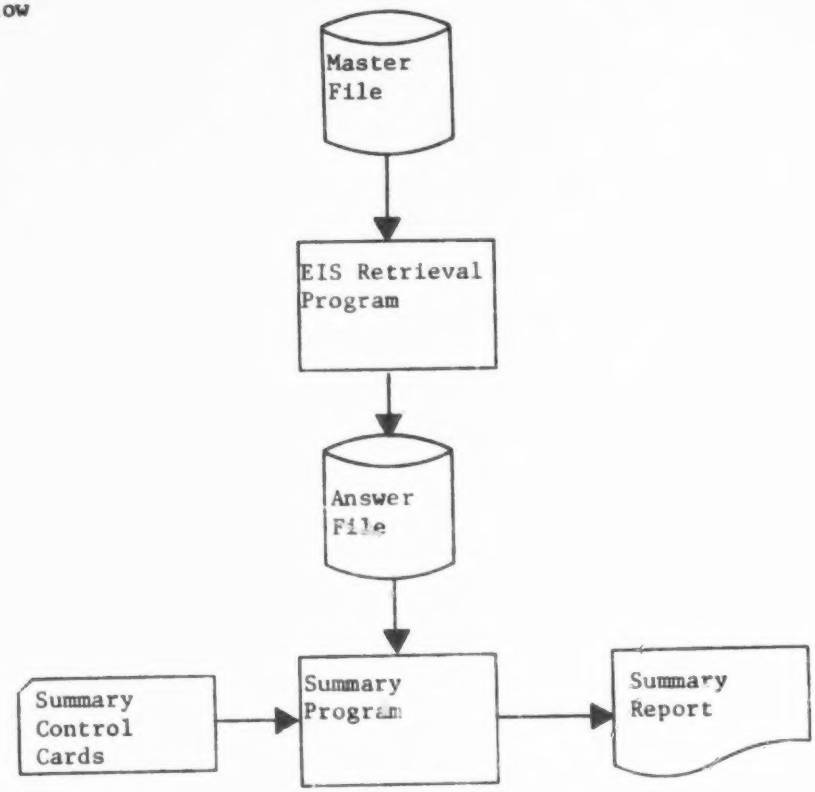

LINKEDIT
JCL
Move
Statements
COBOL JCL

(including member name for Load Library)

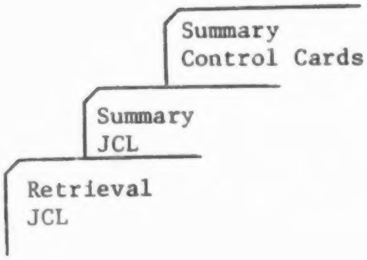
PERMANENT SUMMARY REPORT GENERATION

Figure 4.2-1

Data Flow


Master File
EIS Retrieval Program
Answer File
Summary Control Cards
Summary Program
Summary Report

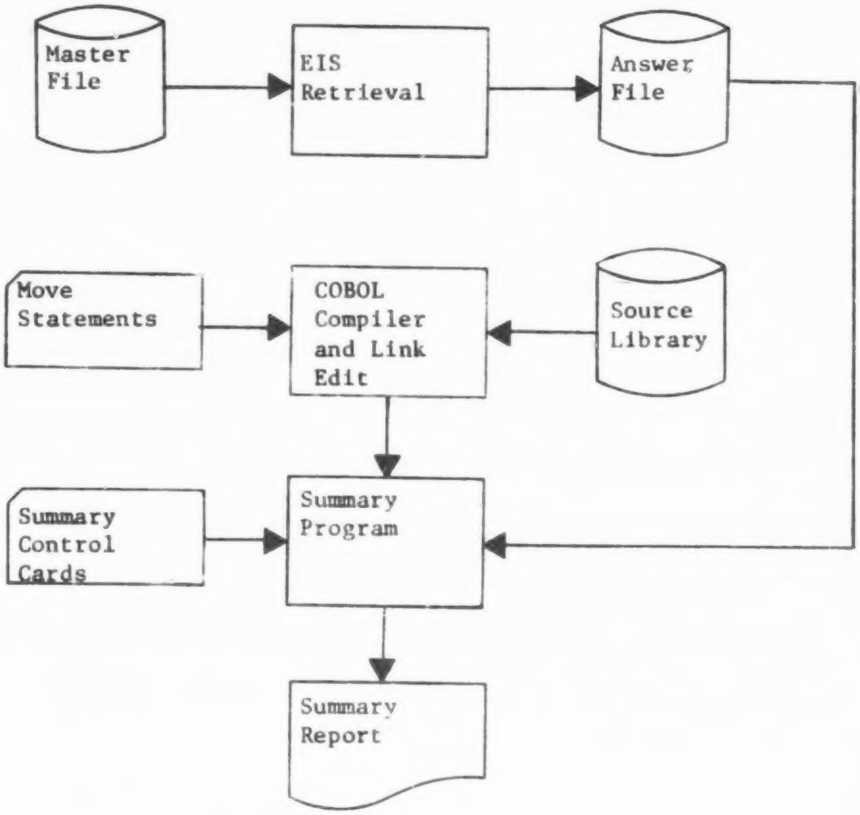
Deck


Summary Control Cards
Summary JCL
Retrieval JCL

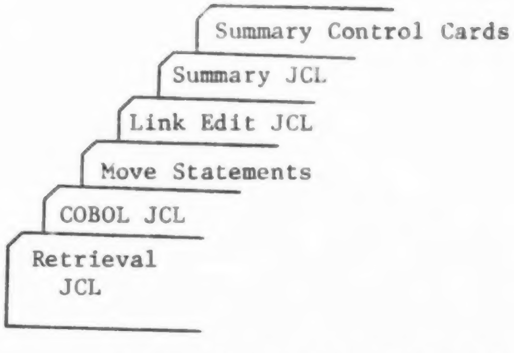
PERMANENT SUMMARY REPORT EXECUTION

Figure 4.2-2

Data Flow


Master File
EIS Retrieval
Answer File
Move Statements
COBOL Compiler and Link Edit
Source Library
Summary Control Cards
Summary Program
Summary Report

Deck


Summary Control Cards
Summary JCL
Link Edit JCL
Move Statements
COBOL JCL
Retrieval JCL

TEMPORARY SUMMARY REPORT GENERATION AND EXECUTION

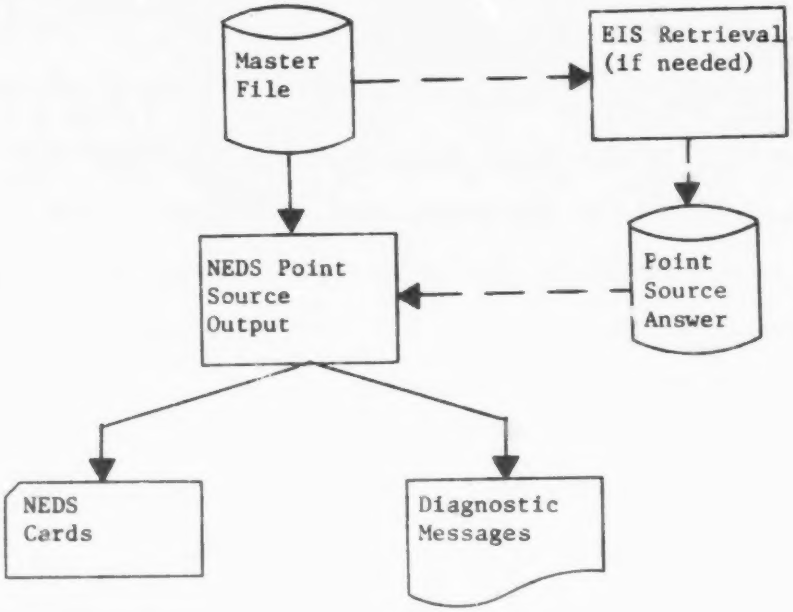
Figure 4.2-3

4.3 NEDS POINT SOURCE OUTPUT

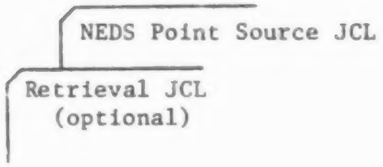
The NEDS point source output program converts the records on an EIS file to NEDS format point source records. Each EIS record is converted as follows: the type 0 record produces an AP1 record; the type 1 record produces AP2, AP3, AP4 and AP5 records; and each type 2 record produces an AP6 record. If a single plant (type 0 record) has more than one point source (type 1 record), the AP1 record is repeated for each new type 1 record. If area source data is in the same file as point source data, the point source data should be selected onto a separate file by use of the EIS retrieval capability (IF USER-PLANT-ID N = 'AREA SOURCE').

The data flow and run deck setup are illustrated in Figure 4.3-1.

Data Flow


Master File
EIS Retrieval (if needed)
NEDS Point Source Output
Point Source Answer
NEDS Cards
Diagnostic Messages

Deck


NEDS Point Source JCL
Retrieval JCL (optional)

NEDS POINT SOURCE OUTPUT - DATA FLOW AND DECK
Figure 4.3-1

4.4 NEDS AREA SOURCE OUTPUT

This program produces NEDS Area Source output from EIS Area Source data. The program expects input to be Area Source data. Therefore, if Area Source data is in the same file as Point Source data, it must be selected onto a separate file by use of the EIS retrieval capability (IF USER-PLANT-ID = AREA SOURCE).

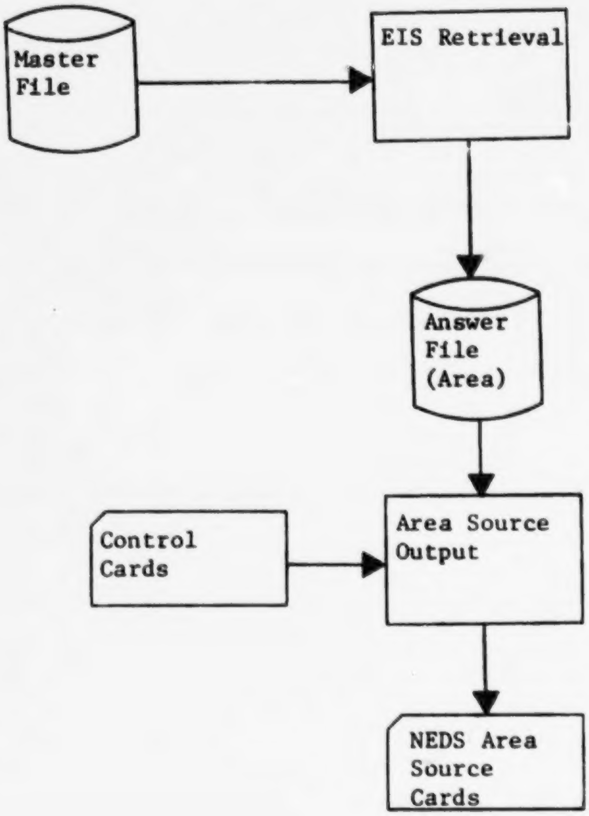
There is one control card which allows the user to specify whether the NEDS "action" code will be A (add), D (delete) or C (change). All action codes must be the same for a given run. Default (no control card) will be A.

Control Card Format

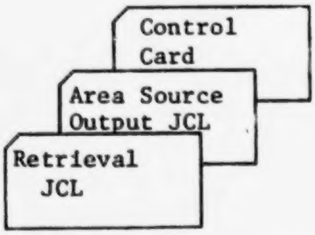
Cols	Content
1-16	NEDS AREA SOURCE
17	Not Used
18	Action Code
19-80	Not Used

The data flow and deck setup is illustrated in Figure 4.4-1.

Data Flow


Master File
EIS Retrieval
Answer File (Area)
Control Cards
Area Source Output
NEDS Area Source Cards

Deck


Control Card
Area Source Output JCL
Retrieval JCL

NEDS AREA SOURCE OUTPUT - DATA FLOW AND DECK

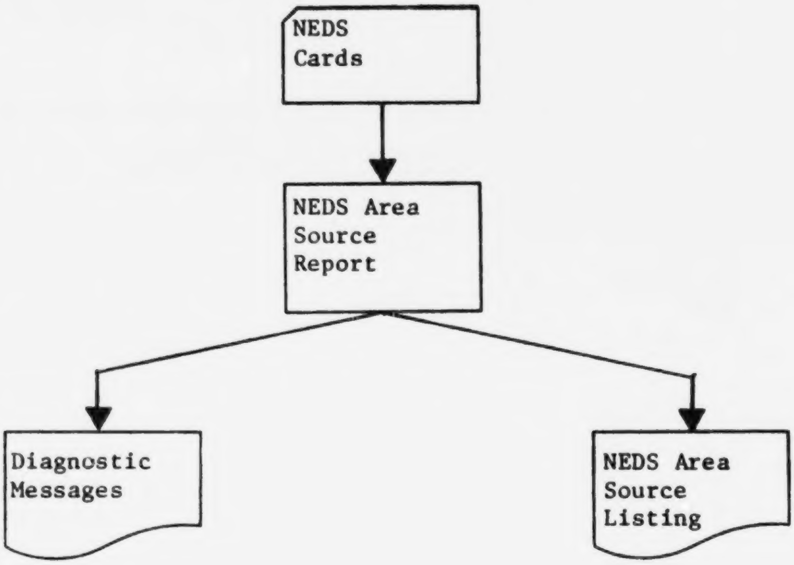
Figure 4.4-1

4.5 NEDS AREA SOURCE REPORT

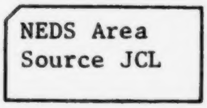
The NEDS area source report program produces a formatted listing from NEDS area source records. One complete set of NEDS area source records (AA1 through AA6) will be listed per page. If errors exist in the NEDS records, the results will be unpredictable.

The data flow and run deck setup are illustrated in Figure 4.5-1.

Data Flow


NEDS Cards
NEDS Area Source Report
Diagnostic Messages
NEDS Area Source Listing

Deck


NEDS Area Source JCL

NEDS AREA SOURCE REPORT - DATA FLOW AND DECK

Figure 4.5-1

5.0 DATA CONVERSION PROGRAMS

There are two EIS conversion programs which convert other types of data to EIS format. These are the NEDS Point Source to EIS and the NEDS Area Source to EIS.

5.1 NEDS POINT SOURCE TO EIS

This Program converts NEDS Point Source input to the Emission Inventory System transaction card format. The one (1) card in the NEDS Point Source input creates the EIS zero (0) record transaction cards. Cards two (2) through five (5) in the NEDS Point Source input create the EIS one (1) record transaction cards. The six (6) card in the NEDS Point Source input creates the EIS two (2) record transaction cards.

All data items in the EIS transaction records which have no corresponding data items in the NEDS input records are set to blanks with the exception of the following:

1. SET-ID (SEGMENT-1-ID) - Set to the same value as the NEDS POINT-ID.
2. POLLUTANT-ID - Five digit parameter codes are given to pollutants reported in NEDS input data. These codes are taken from the SAROAD Parameter Coding Manual, EPA Publication No. APTD-0633.
3. SEGMENT-2-ID - Initialized to 5 and incremented by 5 for each AP6 card. (2 digits)
4. EMISSION-FACTOR-SOURCE (EF-SOURCE) - A one byte code telling the emission factor program to provide POLLUTANT-ID's. Set to "A" for the Emission Factors Insertion Program.

5.2 NEDS AREA SOURCE TO EIS

This program converts NEDS Area Source input to the Emission Inventory System transaction card format. The first five (5) area source input cards are all required to generate the EIS transaction records.

All data items in the EIS transaction records which have no corresponding data items in the NEDS input records are set to blanks with the exception of the following:

1. USER-PLANT-ID - A literal of 'AREA SOURCE' is placed in this field.
2. PLANT-ID - PLANT-ID is set to 9999 since the lowest level addressed is the Area Quality Control Region (AQCR).
3. NUMBER-OF-EMPLOYEES - This field is filled by the value in the county population field of the three (3) cards in NEDS Area Source input.
4. SET-ID - SET-ID is initialized to 01 and incremented sequentially by 1 for each emission category reported on the NEDS Area Source input records (e.g., RESIDENTIAL FUEL = 01, COMMERCIAL AND INSTITUTIONAL FUEL = 02, INDUSTRIAL = 03, etc.)
5. NEDS-POINT-ID - The NEDS-POINT-ID is set to 99 since the AQCR is again the smallest area reported on. (2 digits)

6. USER-POINT-ID - There are thirteen USER-POINT-IDs corresponding to the thirteen major categories reported in NEDS Area Source input. (3 digits.)
    901 = RESIDENTIAL FUEL
    902 = COMMERCIAL AND INSTITUTIONAL FUEL
    903 = INDUSTRIAL FUEL
    904 = ON SITE INCINERATION
    905 = OPEN BURNING
    906 = GASOLINE FUEL
    907 = DIESEL FUEL
    908 = AIRCRAFT
    909 = VESSELS
    910 = EVAPORATION
    911 = MEASURED VEHICLE MILES
    912 = MISCELLANEOUS DUST
    913 - MISCELLANEOUS BURNING
7. SIC - SIC is set to 9999. (4 digits.)
8. IPP - IPP is set to 99. (2 digits.)
9. POLLUTANT-ID - POLLUTANT-ID is given the five digit code from the SAROAD Parameter Coding Manual, EPA Publication No. APTD-0633 representing the five major pollutants reported.
10. ESTIMATION METHOD - ESTIMATION METHOD is set to '3' indicating that emissions are to be calculated.

11. SCC - SCC codes are supplied by the program reflecting the area code, SDD-ID, sulfur indicator, and ash indicator.

12. FUEL PROCESS SOLID WASTE RATE - The value here will be the value found in each fuel reported under the major emission categories.

Category	EIS ID (USER-POINT-ID)	Fuel/Pollutant Source	(AREA) SCC
Residential Fuel	901	Anthracite Coal	90100111
		Bituminous Coal	90100222
		Distillate Oil	90100330
		Residual Oil	90100440
		Natural Gas	90100500
		Wood	90100600
Commercial and Institutional Fuel	902	Anthracite Coal	90200111
		Bituminous Coal	90200222
		Distillate Oil	90200330
		Residual Oil	90200440
		Natural Gas	90200500
		Wood	90200600
Industrial Fuel	903	Anthracite Coal	90300111
		Bituminous Coal	90300222
		Coke	90300700
		Distillate Oil	90300330
		Residual Oil	90300440
		Natural Gas	90300500
		Wood	90300600
		Process Gas	90300800
On Site Incineration	904	Residential	90401100
		Industrial	90401200
		Commercial/Institutional	90401300
Open Burning	905	Residential	90501100
		Industrial	90501200
		Commercial/Institutional	90501300
Gasoline Fuel	906	Light Vehicle	90602100
		Heavy Vehicle	90602200
		Off Hiway	90602300
Diesel Fuel	907	Heavy Vehicle	90702200
		Off Hiway	90702300
		Rail Locomotive	90702400

AREA SOURCE CATEGORIES
Table 5.2-1

Category	EIS ID (USER-POINT-ID)	Fuel/Pollutant Source	(AREA) SCC
Aircraft	908	Military	90803100
		Civil	90803200
		Commercial	90803300
Vessels	909	Anthracite Coal	90900111
		Diesel Oil	90904230
		Residual Oil	90900440
		Gasoline	90904430
Evaporation	910	Solvent Purchased	91005100
		Gasoline Marketed	91005200
Measured Vehicle Miles	911	Limited Access Roads	91106100
		Rural Roads	91106200
		Suburban Roads	91106300
		Urban Roads	91106400
Miscellaneous Dust	912	Dirt Roads Traveled	91207100
		Dirt Air Strips	91207200
		Construction Land Area	91207300
		Rock Handling & Storing	91207400
Miscellaneous Burning	913	Forest Fires	91308100
		Slash Burning	91308200
		Frost Control	91308300
		Structure Fires	91308400
		Coal Refuse Burning	91308500

AREA SOURCE CATEGORIES
Table 5.2-1
(continued)

CARD 01:

FIELD	CONTENTS
State	NEDS State
County	NEDS County
AQCR	NEDS AQCR
Plant ID	9999
Date of Record	NEDS Year of Record-Day 000
User Plant ID	AREA SOURCE
Own	NEDS Density
Action	NEDS Action
Card Number	01
All Other Fields	Blanks

CARD 02:

FIELD	CONTENTS
State through Date of Record	Same as Card 01
Number of Employees	NEDS County Population
Action	NEDS Action
Card Number	02
All Other Fields	Blanks

CARD 03:

FIELD	CONTENTS
State through Date of Record	Same as Card 01
Action	NEDS Action
Card Number	03
All Other Fields	Blanks

EIS AREA SOURCE RECORDS
Table 5.2-2

CARD 11:

FIELD	CONTENTS
State through Date of Record	Same as Card 01
Set ID	Emission Source Count Internally Generated
Point ID - NEDS	99
Point ID-User	Category Code
SIC	9999
IPP	99
Action	NEDS Action
Card Number	11
All Other Fields	Blank

CARD 12:

FIELD	CONTENTS
State through Set ID	Same as Card 11
Action	NEDS Action
Card Number	12
All Other Fields	Blanks

CARD 13:

FIELD	CONTENTS
State through Set ID	Same as Card 11
Pollutant ID	Pollutant ID Cod Particulates - 11101 SO2 - 42401 NOX - 42602 HC - 43101 CO - 42101
Estimate Control Efficiency	000
Estimation Method	3
Action	NEDS Action
Card Number	13
All Other Fields	Blanks

EIS AREA SOURCE RECORDS
Table 5.2-2 (cont.)

CARD 21:

FIELD	CONTENTS
State through segment 1 ID	Same as Card 11
Segment 2 ID	Internally Generated Segment Count
SCC	
Fuel, Process, Solid Waste	NEDS Fuel/Pollution times Heat Content if not zero
Percent Sulfur	NEDS Percent Sulfur
Percent Ash	NEDS Percent Ash
Heat Content	Zero or NEDS quantity (Forest fires, slash burning, frost control and coal refuse burning)
Action	NEDS Action
Card Number	21
All Other Fields	Blanks

CARD 22:

FIELD	CONTENTS
State through Segment 2 ID	Same as Card 21
Action	NEDS Action
Card Number	22
All Other Fields	Blanks

CARD 23:

FIELD	CONTENTS
State through Segment 2 ID	Same as Card 21
Action	NEDS Action
Card Number	23
All Other Fields	Blanks

EIS AREA SOURCE RECORDS
Table 5.2-2 (cont.)

6.0 EMISSION FACTORS TABLE PROGRAMS

There are three EIS programs to facilitate the creation, maintenance and use of the emissions factors tables. These are the Emissions Factors Table Generator, Emission Factors Transaction Generator and Emission Factors Insert Programs.

6.1 EMISSION FACTORS TABLE GENERATOR

The CDHS Emission factors table generator constructs a two page table consisting of SCC numbers and their associated emission factors. The first page contains the SCC number, the date assigned to the SCC number and any ash and/or sulfur content percentage for that SCC number. The table generator program will assign to each SCC number an index value which points to the emission factors for the SCC. The emission factors are in the second page of the table. Each emission factor entry has an associated pollutant identification number, an emission factor units indicator and a flag indicating whether the ash or sulfur percentage is to be used when emission values are computed.

The emission factors table is generated from card input. There are two types of cards and they may be arranged in any order convenient to the user. The table capacity is 800 SCC numbers and 1200 emission factors. The two card formats are the SCC card format (type 1) and the emission factor card format (type 2).

- SCC Card Format

There must be one of these cards for each SCC number which is to be entered into the table. The format is:

Cols 1 - 8	SCC Number
Cols 9 - 13	Date of SCC in Julian Format (YYDDD)
Cols 14 - 16	Ash Percentage (one assumed decimal place - XX.X)
Cols 17 - 19	Sulfur Percentage (two assumed decimal places - X.XX)
Cols 79	1

SCC	DATE	ASH	SUL		1	
1 8	9 13	14 16	17 19		79	

- Emission Factors Card Format

There may be from one to sixteen of these cards for each SCC number. The format is:

Cols 1 - 8	SCC Number
Cols 9 - 13	Pollutant Identification Number
Cols 14 - 22	Emission Factor (three assumed decimal places - XXXXXX.XXX)
Col 23	Units of Measure Code
Col 24	Ash/Sulfur (contains an A or S)
Col 79	2

SCC	POLL. ID	EM. FACT.	UNIT	A/S		2	
1 8	9 13	14 22	23	24		79	

6.2 EMISSION FACTORS TRANSACTION GENERATOR

The emission factors transaction generator will allow the user to automatically update the EIS master file to reflect new emission factors according to an SCC data criteria. This program has a single fixed format control card as follows:

Cols 1 - 5	SCC Date (Julian format YYDDD)
Col	Mode of Operation.

The SCC date field contains a date value which is used as a lower limit for the SCC emission factors table search. Each SCC in the emission factors table has an associated date. When the date associated with the SCC number in the table is equal to or chronologically later than the date on the control card, the new factors will be inserted into the transactions which are created by the transaction generator. These transactions are then used to update the file.

The user should keep a log of SCC codes versus dates so that all necessary emission factors may be updated. The mode of operation field should contain an A, T or N indicating A mode, T mode or N mode of operation. If blank the default mode is T.

T mode: In this mode, the program examines the EF-SOURCE field of the type 2 master file record. If this field is not T, the type 2 record is skipped. If T, then the emission factors table is searched using the SCC as an argument. Each pollutant identification number in the type 2 record is used to search for the emission factors associated with the SCC number. If a previous emission factor is found, the new emission factor, the emission factor units of measure code, and the A/S (ash-sulfur) flag are inserted into that repetition.

N mode: In this mode, operation is identical to the T mode except that the EF-SOURCE field is not examined. Therefore, this mode will insert emission factors into all type 2 records which meet the SCC date criteria. The pollutant identification number search is still performed.

A mode: In this mode, the EF-SOURCE field is not examined and the pollutant identification number search is not performed. Therefore, this mode of operation will replace all the emission factors in all type 2 records with matching SCC codes whose SCC dates meet the date criteria.

6.3 EMISSION FACTORS INSERT

The CDHS emission factors insert program will search the emission factors table using the SCC number as an argument and insert one or more of the associated emission factor values into EIS file maintenance transactions prior to their input to file maintenance.

To perform this function, this program requires the EIS 21, 22 and one or more 23 transactions. The 21 transaction contains the SCC number to be used as the search argument. The EF-SOURCE field in the 22 transaction may contain a blank or the character A or T. If blank, emission factors insertion does not occur. If A or T, the program will operate in the ALL mode or the TABLE mode respectively.

ALL mode: In this mode the program will search the emission factors table using the SCC number in the 21 transaction as a search argument and insert all the emission factors that are associated with this SCC number. The ALL mode requires a single 23 transaction to immediately follow the 22 transaction containing the A in EF-SOURCE. The 23 transaction must contain the key fields; the remaining fields are ignored. For each emission factor a 23 transaction will be constructed by the program from the information supplied by the user's 23 card and from the emission factors table. The data inserted into the 23 transaction will be the pollutant identification number, the emission factor, the emission factor units of measure code and the A/S ash sulfur percentage flag.

TABLE mode: In this mode the program will search the emission factors table using the SCC number in the 21 transaction as a search argument and insert only those emission factors whose insertion is requested. The TABLE Mode requires one or more 23 transactions to immediately follow the 22 transaction containing the T in EF-SOURCE. Each 23 transaction must contain from one to three pollutant identification numbers. The pollutant identification number is used to search the list of emission factors associated with the SCC number. If found the emission factor, the emission factor units of measure code and the A/S ash sulfur percentage flag are inserted into the 23 transaction.

7.0 SYSTEM OPERATION

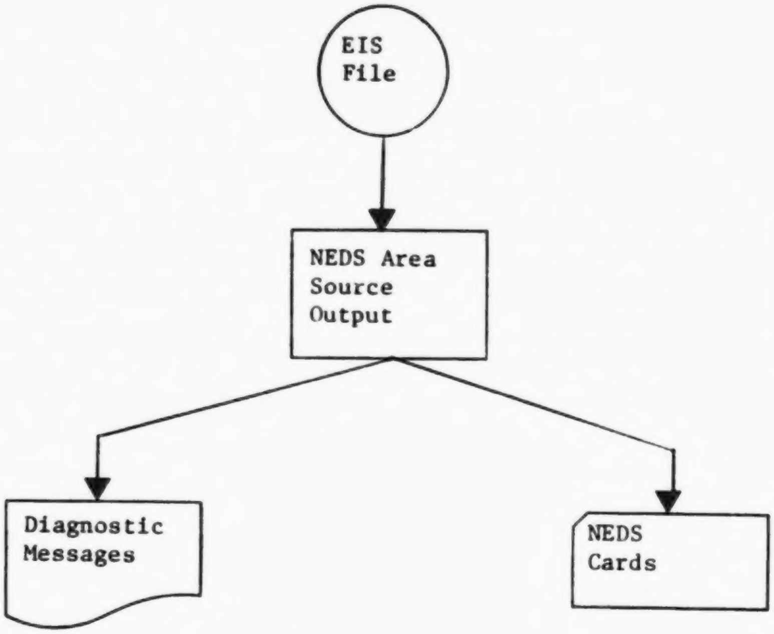
This section explains how the various components of the EIS System are run on the computer. There are two parts to this Section. The first explains the use of the Job Control Language (JCL) cataloged procedures for executing each EIS component and the next gives an example of the use of the cataloged procedures.

7.1 CATALOGED PROCEDURES

The cataloged procedures supplied with EIS are discussed in the following pages. The documentation of each procedure consists of the following: a brief narrative discussing the function of the procedure and its inputs and outputs; a block flow diagram of the data flow through the procedure; a table of DDNAMES used by the EIS programs involved; a table of substitutable parameters controlling the procedure; and a listing of the procedure itself. Non-EIS DDNAMES such as STEPLIB and those needed by COBOL are not discussed in this section. Generally, most input data sets supplied by the user (control cards, etc.), are defined by the deferred DDNAME of INPUT.

7.1.1 EISANCNV - NEDS AREA SOURCE OUTPUT

EISANCNV is executed to output NEDS area source data from EIS file records. The input to the program consists of an EIS file (either master or answer) and is defined by EISFILE. There are two output files used by the program. The first, defined by NEDASFIL, contains the NEDS area source records produced by the program. The second, defined by NEDASLOG, contains diagnostic messages generated during the output process.


EIS File
NEDS Area Source Output
Diagnostic Messages
NEDS Cards

EISANCNV - Data Flow

Figure 7.1.1-1

DD NAME	Description
EISFILE	EIS master file to be converted
NEDASFIL	Data set to contain NEDS records
NEDASLOG	Print file for diagnostic messages

EISANCNV - DDNAMES

Figure 7.1.1-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	AXASNEDS	Program to convert EIS area source file to NEDS records
MSTRFIL	FTMSTRAA	Lowest level index of EIS file to be converted
NEDSOUT	B	Sysout class of NEDS records
OUT	A	Sysout class of all print files

EISANCNV - Substitutable Parameters

Figure 7.1.1-3

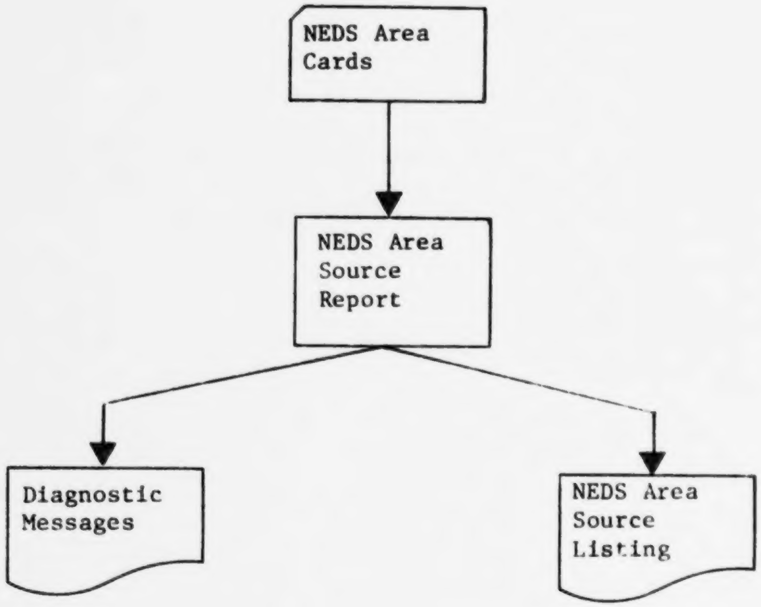
```
                                EIS CATALOGED PROCEDURES

//*            EISANCNV                  HURLEY RF          WF4   06/30/74 00000100
//*                                                                        00000200
//EISANCNV PROC PROJECT=EIS,                                               00000300
//             PROGRAM=AXASNEDS,                                           00000400
//             MSTRFIL=FTMSTRAA,                                           00000500
//             NEDSOUT=B,                                                  00000600
//             OUT=A                                                       00000700
//*                                                                        00000800
//CONVERT EXEC PGM=&PROGRAM,                                               00000900
//             REGION=24K,                                                 00001000
//             TIME=(1,0)                                                  00001100
//*                                                                        00001200
//* CONVERT EIS AREA SOURCE FILE TO NEDS FORMAT                            00001300
//*                                                                        00001400
//STEPLIB    DD DSNAME=&PROJECT..LOAD,                                     00001500
//             VOLUME=(PRIVATE,RETAIN),                                    00001600
//             DISP=(SHR,PASS)                                             00001700
//           DD DSNAME=SYS1.ANS.COBSUBR,                                   00001800
//             DISP=(SHR,PASS)                                             00001900
//*                                                                        00002000
//* INPUT DATA SET - EIS MASTER FILE                                       00002100
//*                                                                        00002200
//EISFILE    DD DSNAME=&PROJECT..DATA.&MSTRFIL,                            00002300
//             VOLUME=(PRIVATE,RETAIN),                                    00002400
//             DISP=(SHR,PASS)                                             00002500
//*                                                                        00002600
//* OUTPUT DATA SET - NEDS FILE                                            00002700
//*                                                                        00002800
//NEDASFIL   DD SYSOUT=&NEDSOUT                                            00002900
//*                                                                        00003000
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                  00003100
//*                                                                        00003200
//NEDASLOG   DD SYSOUT=&OUT                                                00003300
//*                                                                        00003400
//* OUTPUT DATA SETS - SYSTEM OPERATION                                    00003500
//*                                                                        00003600
//SYSPRINT   DD SYSOUT=&OUT                                                00003700
//*                                                                        00003800
//SYSOUT     DD SYSOUT=&OUT                                                00003900
//*                                                                        00004000
//SYSDBOUT   DD SYSOUT=&OUT                                                00004100
//*                                                                        00004200
//SYSDTERM   DD SYSOUT=&OUT                                                00004300
//*                                                                        00004400
//SYSUDUMP   DD SYSOUT=&OUT                                                00004500
//*                                                                        00004600
```

EISANCNV Procedure

Figure 7.1.1-4

7.1.2 EISANRPT - NEDS AREA SOURCE REPORT

EISANRPT is executed to produce a formatted listing of NEDS area source records. The input to the program consists of NEDS area source records and is defined by NEDSFILE. There are two output files used by the program. The first, defined by EISPRINT, contains diagnostic messages produced during the reporting process. The second, defined by NEDSPRINT, contains the formatted listing of the NEDS records.


NEDS Area Cards
NEDS Area Source Report
Diagnostic Messages
NEDS Area Source Listing

EISANRPT - Data Flow

Figure 7.1.2-1

DDNAME	Description
NEDSFILE	NEDS Area Source Records to be Listed
NEDSPRINT	Print File for Area Source Listing
EISPRINT	Print File for Diagnostic Messages

EISANRPT - DDNAMES

Figure 7.1.2-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	HXANREPT	Program to list NEDS area source records
NEDSFIL	NEDS	Lowest level index of NEDS file to be listed
OUT	A	Sysout class of all print files

EISANRPT - Substitutable Parameters

Figure 7.1.2-3

EIS CATALOGED PROCEDURES

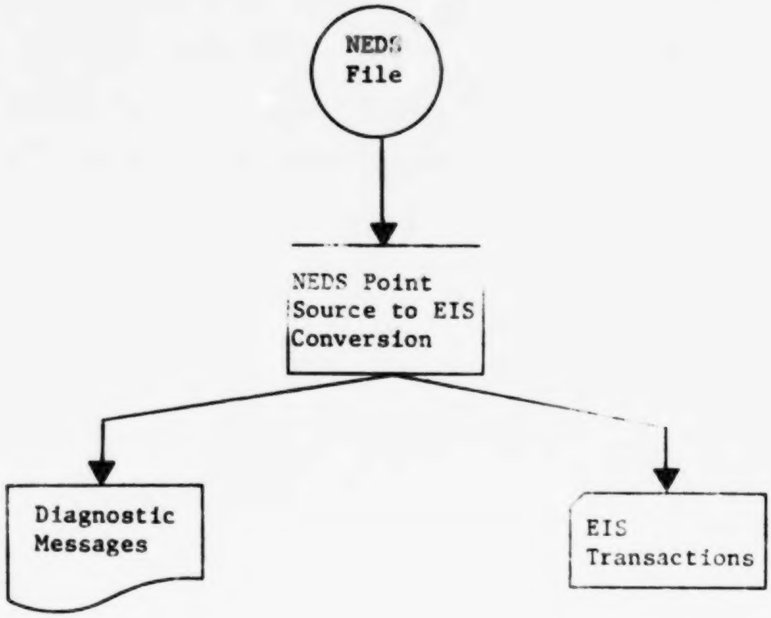
```
//*             EISANRPT                   HURLEY RF          WF4   06/30/74 00000100
//*                                                                          00000200
//EISANRPT PROC PROJECT=EIS,                                                 00000300
//              PROGRAM=HXANREPT,                                            00000400
//              NEDSFIL=NEDS,                                                00000500
//              OUT=A                                                        00000600
//*                                                                          00000700
//REPORT   EXEC PGM=&PROGRAM,                                                00000800
//              REGION=40K,                                                  00000900
//              TIME=(1,0)                                                   00001000
//*                                                                          00001100
//* PRODUCE NEDS AREA SOURCE DETAIL REPORT                                   00001200
//*                                                                          00001300
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                        00001400
//              VOLUME=(PRIVATE,RETAIN),                                     00001500
//              DISP=(SHR,PASS)                                              00001600
//          DD DSNAME=SYS1.ANS.COBSUBR,                                      00001700
//              DISP=(SHR,PASS)                                              00001800
//*                                                                          00001900
//* INPUT DATA SET - NEDS AREA SOURCE FILE                                   00002000
//*                                                                          00002100
//NEDSFILE  DD DSNAME=&PROJECT..DATA.&NEDSFIL,                               00002200
//              VOLUME=(PRIVATE,RETAIN),                                     00002300
//              DISP=(SHR,PASS)                                              00002400
//*                                                                          00002500
//* OUTPUT FILE - NEDS AREA SOURCE DETAIL REPORT                             00002600
//*                                                                          00002700
//NEDSPRNT  DD SYSOUT=&OUT                                                   00002800
//*                                                                          00002900
//* OUTPUT FILE - DIAGNOSTIC MESSAGES                                        00003000
//*                                                                          00003100
//EISPRINT  DD SYSOUT=&OUT                                                   00003200
//*                                                                          00003300
//* OUTPUT DATA SETS - SYSTEM OPERATION                                      00003400
//*                                                                          00003500
//SYSPRINT  DD SYSOUT=&OUT                                                   00003600
//*                                                                          00003700
//SYSOUT    DD SYSOUT=&OUT                                                   00003800
//*                                                                          00003900
//SYSDBOUT  DD SYSOUT=&OUT                                                   00004000
//*                                                                          00004100
//SYSDTERM  DD SYSOUT=&OUT                                                   00004200
//*                                                                          00004300
//SYSUDUMP  DD SYSOUT=&OUT                                                   00004400
//*                                                                          00004500
```

EISANRPT Procedure

Figure 7.1.2-4

7.1.3 EISCNVRT - NEDS POINT SOURCE TO EIS

EISCNVRT is executed to convert NEDS point source records to EIS transactions. The input to the conversion program consists of a NEDS point source file and is defined by NEDSFILE. There are two output files used by the conversion program. The first, defined by EISTRANS, contains the EIS file maintenance transactions produced by the conversion program. The second, defined by EISPRINT, contains diagnostic messages generated during the conversion process.


NEDS File
NEDS Point Source to EIS Conversion
Diagnostic Messages
EIS Transactions

EISCNVRT - Data Flow
Figure 7.1.3-1

DD NAME	Description
NEDSFILE	Data set containing NEDS point source records
EISTRANS	Data set to contain generated EIS transactions
EISPRINT	Print file for diagnostic messages

EISCNVRT - DDNAMES

Figure 7.1.3-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	CXNEDSCV	Program to convert NEDS point source records to EIS transactions
OUT	A	Sysout class of all print files

EISCNVRT - Substitutable Parameters

Figure 7.1.3-3

EIS CATALOGED PROCEDURES

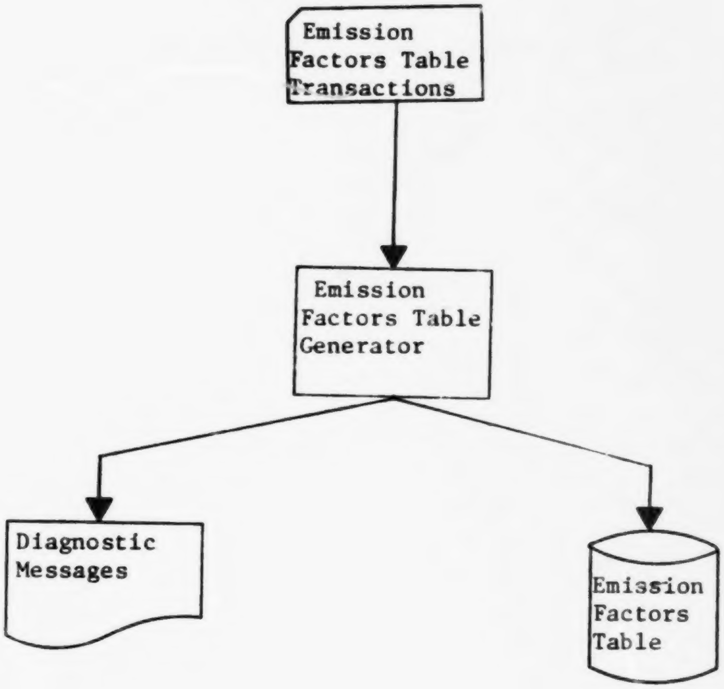
```
//*           EISCNVRT                  HURLEY RF        WF4    06/30/74 00000100
//*                                                                      00000200
//EISCNVRT PROC PROJECT=EIS,                                             00000300
//              PROGRAM=CXNEDSCV,                                        00000400
//              OUT=A                                                    00000500
//*                                                                      00000600
//CONVERT EXEC PGM=&PROGRAM,                                             00000700
//              REGION=20K,                                              00000800
//              TIME=(1,0)                                               00000900
//*                                                                      00001000
//* CONVERT NEDS POINT SOURCE RECORDS TO EIS TRANSACTIONS                00001100
//*                                                                      00001200
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                    00001300
//              VOLUME=(PRIVATE,RETAIN),                                 00001400
//              DISP=(SHR,PASS)                                          00001500
//          DD DSNAME=SYS1.ANS.COBSUBR,                                  00001600
//              DISP=(SHR,PASS)                                          00001700
//*                                                                      00001800
//* INPUT DATA SET - NEDS RECORDS                                        00001900
//*                                                                      00002000
//NEDSFILE  DD DDNAME=INPUT,                                             00002100
//              DCB=BLKSIZE=80                                           00002200
//*                                                                      00002300
//* OUTPUT DATA SET - EIS TRANSACTIONS                                   00002400
//*                                                                      00002500
//EISTRANS  DD DDNAME=OUTPUT                                             00002600
//*                                                                      00002700
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                00002800
//*                                                                      00002900
//EISPRINT  DD SYSOUT=&OUT                                               00003000
//*                                                                      00003100
//* OUTPUT DATA SETS - SYSTEM OPERATION                                  00003200
//*                                                                      00003300
//SYSPRINT  DD SYSOUT=&OUT                                               00003400
//*                                                                      00003500
//SYSOUT    DD SYSOUT=&OUT                                               00003600
//*                                                                      00003700
//SYSDBOUT  DD SYSOUT=&OUT                                               00003800
//*                                                                      00003900
//SYSDTERM  DD SYSOUT=&OUT                                               00004000
//*                                                                      00004100
//SYSUDUMP  DD SYSOUT=&OUT                                               00004200
//*                                                                      00004300
```

EISCNVRT Procedure

Figure 7.1.3-4

7.1.4 EISEFGEN-EMISSION FACTORS TABLE GENERATOR

EISEFGEN is executed to generate an emission factors table. The input to the generation program consists of emission factors table transactions and is defined by ETBGIN. There are two output files used by the generation program. The first, defined by ETBGTABL, contains the emission factors table produced by the generation program. The second, defined by ETBGERR, contains diagnostic messages generated during the emission factors table generation process.


Emission Factors Table Transactions
Emission Factors Table Generator
Diagnostic Messages
Emission Factors Table

EISEFGN - Data Flow

Figure 7.1.4-1

DD NAME	Description
ETBGIN	Emission factor table transactions
ETBGERR	Print file for diagnostic messages
ETBGTABL	Data set to contain emission factors table

EISEFGEN - DDNAMES

Figure 7.1.4-2

Parameter	Default	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	EXTBGN	Program to generate emission factors table
EFTABLE	EFTABLE	Lowest level index of emission factors table
UNIT	2314	Unit type upon which the emission factors table is to reside
SERIAL	009858	Volume serial of volume upon which emission factors table is to reside
DISP	'NEW, CATLG, DELETE'	Disposition of emission factors table
SPCUNIT	TRK	Units in which space for the emission factor table is to be allocated
PRIMARY	5	Number of units to be allocated for the emission factors table's primary allocation
SECNDRY	1	Number of units to be allocated for the emission factors table's secondary allocation
TEMP	SYSOUT	Unit type for temporary work space
OUT	A	Sysout class for all print files

EISEFGEN - Substitutable Parameters

Figure 7.1.4-3

```
//*            EISEFGEN               HURLEY RF         WF4    06/30/74 00000100
//*                                                                     00000200
//EISEFGEN PROC PROJECT=EIS,                                            00000300
//              PROGRAM=EXTBGN,                                         00000400
//              EFTABLE=EFTABLE,                                        00000500
//              TEMP=SYSOUT,                                            00000600
//              UNIT=2314,                                              00000700
//              SERIAL=009858,                                          00000800
//              DISP='NEW,CATLG,DELETE',                                00000900
//              SPCUNIT=TRK,                                            00001000
//              PRIMARY=5,                                              00001100
//              SECNDRY=1,                                              00001200
//              OUT=A                                                   00001300
//*                                                                     00001400
//GENERATE EXEC PGM=&PROGRAM,                                           00001500
//              REGION=100K,                                            00001600
//              TIME=(1,0)                                              00001700
//*                                                                     00001800
//* GENERATE EIS EMISSION FACTORS TABLE                                 00001900
//*                                                                     00002000
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                   00002100
//              VOLUME=(PRIVATE,RETAIN),                                00002200
//              DISP=(SHR,PASS)                                         00002300
//          DD DSNAME=SYS1.ANS.COBSUBR,                                 00002400
//              DISP=(SHR,PASS)                                         00002500
//*                                                                     00002600
//* INPUT DATA SET - EF TABLE TRANSACTIONS                              00002700
//*                                                                     00002800
//ETBGIN    DD DDNAME=INPUT,                                            00002900
//              DCB=BLKSIZE=80                                          00003000
//*                                                                     00003100
//* INPUT DATA SET - SORT PROGRAM LIBRARY                               00003200
//*                                                                     00003300
//SORTLIB   DD DSNAME=SYS1.SORTLIB,                                     00003400
//              VOLUME=(PRIVATE,RETAIN),                                00003500
//              DISP=(SHR,PASS)                                         00003600
//*                                                                     00003700
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                               00003800
//*                                                                     00003900
//ETBGERR   DD SYSOUT=&OUT                                              00004000
//*                                                                     00004100
//* OUTPUT DATA SET - EMISSION FACTORS TABLE                            00004200
//*                                                                     00004300
//ETBGTABL  DD UNIT=&UNIT,                                              00004400
//              VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                    00004500
//              DISP=(&DISP),                                           00004600
//              SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),              00004700
//              DSNAME=&PROJECT..DATA.&EFTABLE                          00004800
//*                                                                     00004900
//* UTILITY DATA SETS                                                   00005000
//*                                                                     00005100
//SORTWK01  DD UNIT=&TEMP,                                              00005200
//              SPACE=(TRK,(10,5),,CONTIG)                              00005300
//*                                                                     00005400
//SORTWK02  DD UNIT=(&TEMP,SEP=SORTWK01),                               00005500
//              SPACE=(TRK,(10,5),,CONTIG)                              00005600
```

EISEFGEN Procedure

Figure 7.1.4-4

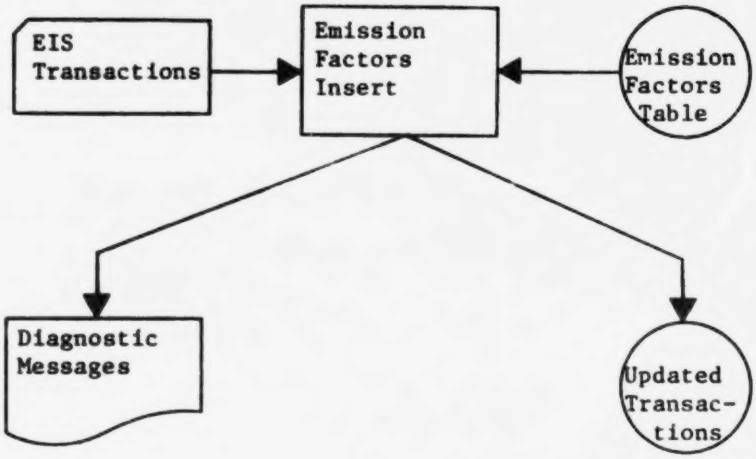
```
//*                                                                     00005700
//SORTWK03  DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02)),                    00005800
//             SPACE=(TRK,(10,5),,CONTIG)                               00005900
//*                                                                     00006000
//* OUTPUT DATA SETS -  SYSTEM OPERATION                                00006100
//*                                                                     00006200
//SYSPRINT  DD SYSOUT=&OUT                                              00006300
//*                                                                     00006400
//SYSOUT    DD SYSOUT=&OUT                                              00006500
//*                                                                     00006600
//SYSDBOUT  DD SYSOUT=&OUT                                              00006700
//*                                                                     00006800
//SYSDTERM  DD SYSOUT=&OUT                                              00006900
//*                                                                     00007000
//SYSUDUMP  DD SYSOUT=&OUT                                              00007100
//*                                                                     00007200
```

EISEFGEN Procedure

Figure 7.1.4-4 (cont.)

7.1.5 EISEFINS - EMISSION FACTORS INSERT

EISEFINS is executed to insert emission factors into EIS file maintenance transactions. There are two input files used by the insertion program. The first, defined by EFIXTIN, contains the EIS transactions into which the emission factors are to be inserted. The second, defined by EFIXTABL, contains the emission factors table. There are two output files used by the insertion program. The first, defined by EFIXTOUT, contains the EIS transactions into which the emission factors have been inserted. The second, defined by EFIXERR, contains diagnostic messages generated during the insertion process.


EIS Transactions
Emission Factors Insert
Emission Factors Table
Diagnostic Messages
Updated Transactions

EISEFINS - Data Flow

Figure 7.1.5-1

DD NAME	Description
EFIXTIN	EIS Transactions into which emission factors are to be inserted
EFIXTABL	Emission factors table
EFIXERR	Print file for diagnostic messages
EFIXTOUT	Data set to contain EIS transactions into which emission factors have been inserted.

EISEFINS - DDNAMES

Figure 7.1.5-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	EXEFIX	Program to insert emission factors into EIS transactions
EFTABLE	EFTABLE	Lowest level index of emission factors table
TRANS	TRANS	Lowest level index of EIS transactions
UNIT	2314	Unit type upon which the EIS transactions are to reside
SERIAL	009858	Volume serial of volume upon which the EIS transactions are to reside
DISP.	'NEW, PASS, DELETE'	Disposition of EIS transactions
SPCUNIT	TRK	Units in which space for the EIS transactions is to be allocated
PRIMARY	5	Number of units to be allocated for the EIS transactions' primary allocation
SECNDRY	1	Number of units to be allocated for the EIS transactions' secondary allocation

EISEFINS - Substitutable Parameters (Sheet 1 of 2)

Figure 7.1.5-3

TEMP	SYSOUT	Unit type for temporary work space
OUT	A	Sysout class of all print files.

EISEFINS - Substitutable Parameters (Sheet 2 of 2)

EIS CATALOGED PROCEDURES

```
//*            EISEFINS               HURLEY RF        WF4   06/30/74 00000100
//*                                                                 00000200
//EISEFINS PROC PROJECT=EIS,                                        00000300
//            PROGRAM=EXEFIX,                                       00000400
//            EFTABLE=EFTABLE,                                      00000500
//            TEMP=SYSOUT,                                          00000600
//            UNIT=2314,                                            00000700
//            SERIAL=009858,                                        00000800
//            DISP='NEW,PASS,DELETE',                               00000900
//            SPCUNIT=TRK,                                          00001000
//            PRIMARY=5,                                            00001100
//            SECNDRY=1,                                            00001200
//            TRANS=TRANS,                                          00001300
//            OUT=A                                                 00001400
//*                                                                 00001500
//INSERT  EXEC PGM=&PROGRAM,                                        00001600
//            REGION=100K,                                          00001700
//            TIME=(1,0)                                            00001800
//*                                                                 00001900
//* INSERT EMISSION FACTORS INTO EIS TRANSACTIONS                   00002000
//*                                                                 00002100
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                               00002200
//            VOLUME=(PRIVATE,RETAIN),                              00002300
//            DISP=(SHR,PASS)                                       00002400
//          DD DSNAME=SYS1.ANS.CUBSUBR,                             00002500
//            DISP=(SHR,PASS)                                       00002600
//*                                                                 00002700
//* INPUT DATA SET - EIS TRANSACTIONS                               00002800
//*                                                                 00002900
//EFIXTIN   DD DDNAME=INPUT,                                        00003000
//            DCB=BLKSIZE=80                                        00003100
//*                                                                 00003200
//* INPUT DATA SET - EMISSION FACTORS TABLE                         00003300
//*                                                                 00003400
//EFIXTABL  DD DSNAME=&PROJECT..DATA.&EFTABLE,                      00003500
//            VOLUME=(PRIVATE,RETAIN),                              00003600
//            DISP=(SHR,PASS)                                       00003700
//*                                                                 00003800
//* INPUT DATA SET - SORT PROGRAM LIBRARY                           00003900
//*                                                                 00004000
//SORTLIB   DD DSNAME=SYS1.SORTLIB,                                 00004100
//            VOLUME=(PRIVATE,RETAIN),                              00004200
//            DISP=(SHR,PASS)                                       00004300
//*                                                                 00004400
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                           00004500
//*                                                                 00004600
//EFIXERR   DD SYSOUT=&OUT                                          00004700
//*                                                                 00004800
//*                                                                 00004900
//* OUTPUT DATA SET - UPDATED TRANSACTIONS                          00005000
//*                                                                 00005100
//EFIXTOUT  DD UNIT=&UNIT,                                          00005200
//            VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                  00005300
//            DISP=(&DISP),                                         00005400
//            SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),            00005500
//            DSNAME=&PROJECT..DATA.&TRANS                          00005600
```

EISEFINS Procedure

Figure 7.1.5-4

EIS CATALOGED PROCEDURES

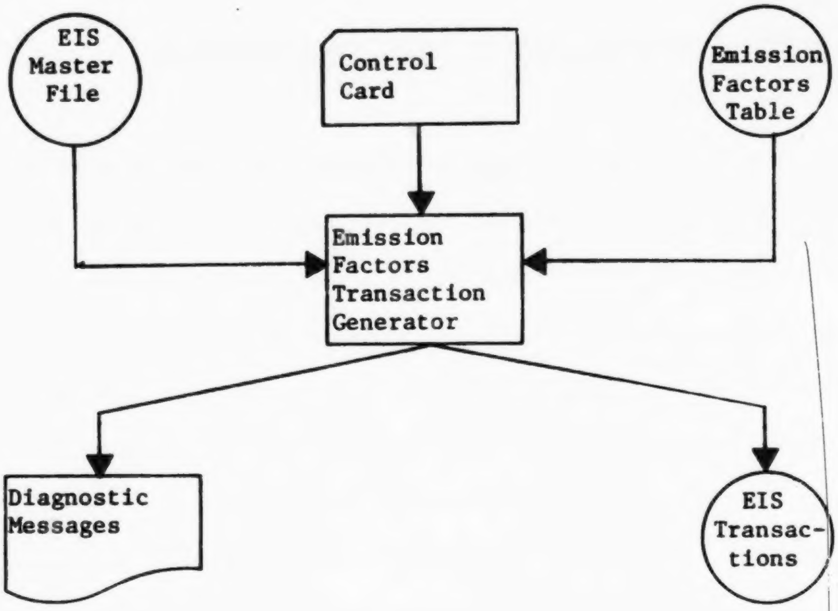
```
//*                                                                   00005700
//* UTILITY DATA SETS                                                 00005800
//*                                                                   00005900
//SORTWK01  DD UNIT=&TEMP,                                            00006000
//             SPACE=(TRK,(10,5),,CONTIG)                             00006100
//*                                                                   00006200
//SORTWK02  DD UNIT=(&TEMP,SEP=SORTWK01),                             00006300
//             SPACE=(TRK,(10,5),,CONTIG)                             00006400
//*                                                                   00006500
//SORTWK03  DD UNIT=(&TEMP,SEP=(SORTWK01,SORTWK02)),                  00006600
//             SPACE=(TRK,(10,5),,CONTIG)                             00006700
//*                                                                   00006800
//* OUTPUT DATA SETS - SYSTEM OPERATION                               00006900
//*                                                                   00007000
//SYSPRINT  DD SYSOUT=&OUT                                            00007100
//*                                                                   00007200
//SYSOUT    DD SYSOUT=&OUT                                            00007300
//*                                                                   00007400
//SYSDBOUT  DD SYSOUT=&OUT                                            00007500
//*                                                                   00007600
//SYSDTERM  DD SYSOUT=&OUT                                            00007700
//*                                                                   00007800
//SYSUDUMP  DD SYSOUT=&OUT                                            00007900
//*                                                                   00008000
```

EISEFINS Procedure

Figure 7.1.5-4 (cont.)

7.1.6 EISEFUPD - EMISSION FACTORS TRANSACTION GENERATOR

EISEFUPD is executed to update emission factors existing in the EIS master file with new emission factors from the emission factors table. There are three input files used by the emission factors transaction generator program. The first, defined by EFIFMSTR, contains the EIS file to be updated. The second, defined by EFIFTABL, contains the emission factors table. The third, defined by EFIFIN, contains the control card which determines the emission factors to be updated. There are two output files used by the program. The first, defined by EFIFXOUT, contains the EIS file maintenance transactions to update the emission factors in the master file. The second, defined by EFIFERR, contains diagnostic messages generated during the transaction generation process.


EIS Master File
Control Card
Emission Factors Table
Emission Factors Transaction Generator
Diagnostic Messages
EIS Transactions

EISEFUPD - Data Flow

Figure 7.1.6-1

DD NAME	Description
EFIFIN	Control card
EFIFMSTR	EIS master file to be updated
EFIFTABL	Emission factors table
EFIFERR	Print file for diagnostic messages
EFIFXOUT	Data set to contain generated EIS transactions

EISEFUPD - DDNAMES

Figure 7.1.6-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	EXEFIF	Program to create EIS transaction to update emission factors
MSTRFIL	FTMSTRAA	Lowest level index of EIS master file to be updated
EFTABLE	EFTABLE	Emission factors table
TRANS	TRANS	Lowest level index of data set to contain generated EIS transactions
UNIT	2314	Unit type upon which the EIS transactions are to reside
SERIAL	009858	Volume serial of volume upon which the EIS transactions are to reside
DISP	'NEW, PASS, DELETE'	Disposition of EIS transactions
SPCUNIT	TRK	Units in which space for the EIS transactions are to be allocated
PRIMARY	5	Number of units to be allocated for the EIS transactions' primary allocation
SECNDRY	1	Number of units to be allocated for the EIS transactions' secondary allocation
OUT	A	Sysout class for all print files

EISEFUPD - Substitutable Parameters
Figure 7.1.6-3

```
//*            EISEFUPD                 HURLEY RF        WF4   06/30/74 00000100
//*                                                                     00000200
//EISEFUPD PROC PROJECT=EIS,                                            00000300
//             PROGRAM=EXEFIF,                                          00000400
//             MSTRFIL=FTMSTRAA,                                        00000500
//             EFTABLE=EFTABLE,                                         00000600
//             TRANS=TRANS,                                             00000700
//             UNIT=2314,                                               00000800
//             SERIAL=009658,                                           00000900
//             DISP='NEW,PASS,DELETE',                                  00001000
//             SPCUNIT=TRK,                                             00001100
//             PRIMARY=5,                                               00001200
//             SECNDRY=1,                                               00001300
//             OUT=A                                                    00001400
//*                                                                     00001500
//EFUPDATE EXEC PGM=&PROGRAM,                                           00001600
//             REGION=80K,                                              00001700
//             TIME=(1,0)                                               00001800
//*                                                                     00001900
//* PRODUCE EIS TRANSACTIONS TO UPDATE EMISSION FACTORS                 00002000
//*                                                                     00002100
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                   00002200
//             VOLUME=(PRIVATE,RETAIN),                                 00002300
//             DISP=(SHR,PASS)                                          00002400
//          DD DSNAME=SYS1.ANS.COBSUBR,                                 00002500
//             DISP=(SHR,PASS)                                          00002600
//*                                                                     00002700
//* INPUT DATA SET - CONTROL CARD                                       00002800
//*                                                                     00002900
//EFIFIN    DD DDNAME=INPUT,                                            00003000
//             DCB=BLKSIZE=80                                           00003100
//*                                                                     00003200
//* INPUT DATA SET - EIS MASTER FILE                                    00003300
//*                                                                     00003400
//EFIFMSTR  DD DSNAME=&PROJECT..DATA.&MSTRFIL,                          00003500
//             VOLUME=(PRIVATE,RETAIN),                                 00003600
//             DISP=(SHR,PASS)                                          00003700
//*                                                                     00003800
//* INPUT DATA SET - EMISSION FACTORS TABLE                             00003900
//*                                                                     00004000
//EFIFTABL  DD DSNAME=&PROJECT..DATA.&EFTABLE,                          00004100
//             VOLUME=(PRIVATE,RETAIN),                                 00004200
//             DISP=(SHR,PASS)                                          00004300
//*                                                                     00004400
//* OUTPUT DATA SET - DISGNOSTIC MESSAGES                               00004500
//*                                                                     00004600
//EFIFERR   DD SYSOUT=&OUT                                              00004700
//*                                                                     00004800
//* OUTPUT DATA SET - EIS TRANSACTIONS                                  00004900
//*                                                                     00005000
//EFIFXOUT  DD UNIT=&UNIT,                                              00005100
//             VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                     00005200
//             DISP=(&DISP),                                            00005300
//             SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),               00005400
//             DSNAME=&PROJECT..DATA.&TRANS                             00005500
//*                                                                     00005600
```

EISEFUPD Procedure

Figure 7.1.6-4

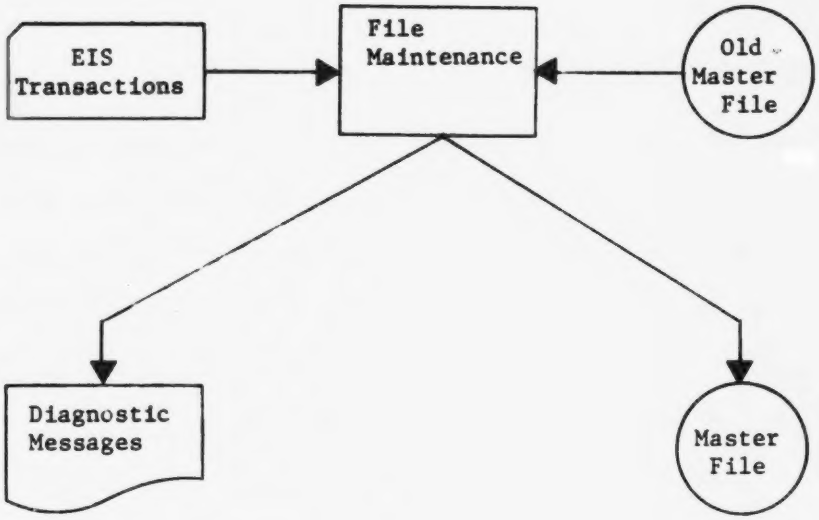
```
//* OUTPUT DATA SETS - SYSTEM OPERATION                                 00005700
//*                                                                     00005800
//SYSPRINT  DD SYSOUT=&OUT                                              00005900
//*                                                                     00006000
//SYSOUT    DD SYSOUT=&OUT                                              00006100
//*                                                                     00006200
//SYSDBOUT  DD SYSOUT=&OUT                                              00006300
//*                                                                     00006400
//SYSOTERM  DD SYSOUT=&OUT                                              00006500
//*                                                                     00006600
//SYSUDUMP  DD SYSOUT=&OUT                                              00006700
//*                                                                     00006800
```

EISEFUPD Procedure

Figure 7.1.6-4 (cont.)

7.1.7 EISFUPDT - FILE MAINTENANCE

EISFUPDT is executed to perform file maintenance functions upon the EIS master file. There are two input files used by the file maintenance program. The first, defined by EISOLDMS, contains the EIS master file to be updated (if any). The second, defined by EISTRANS, contains the EIS file maintenance transactions. There are two output files used by the file maintenance program. The first, defined by EISMASTR, contains the updated or created EIS master file. The second, defined by EISERROR, contains diagnostic messages generated during the file maintenance process and a listing of the input file maintenance transactions.


EIS Transactions
File Maintenance
Old Master File
Diagnostic Messages
Master File

EISFUPDT - Data Flow
Figure 7.1.7-1

DD NAME	Description
EISTRANS	EIS transactions to update the master file
EISOLDMS	EIS master file to be updated
EISMASTR	New EIS master file
EISERROR	Print file for diagnostic messages

EISFUPDT - DDNAMES

Figure 7.1.7-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	FXFILMNT	EIS file maintenance program
OLDMSTR	FTMSTRAA	Lowest level index of EIS master file to be updated
NEWMSTR	FTMSTRAB	Lowest level index of updated EIS master file.
UNIT	2314	Unit type upon which new file is to reside
SERIAL	009858	Volume serial of volume upon which new file is to reside
DISP	'New, Catlg, Delete'	Disposition of new file
SPCUNIT	TRK	Units in which space for the new file is to be allocated
PRIMARY	10	Number of units to be allocated for the new file's primary allocation
SECNDRY	5	Number of units to be allocated for the new file's secondary allocation
OUT	A	Sysout class of all print files.

EISFUPDT - Substitutable Parameters

Figure 7.1.7-3

EIS CATALOGED PROCEDURES

```
//*             EISFUPDT                 HURLEY RF         WF4   06/30/74 00000100
//*                                                                       00000200
//EISFUPDT PROC PROJECT=EIS,                                              00000300
//              PROGRAM=FXFILMNT,                                         00000400
//              OLDMSTR=FTMSTRAA,                                         00000500
//              NEWMSTR=FTMSTRAB,                                         00000600
//              UNIT=2314,                                                00000700
//              SERIAL=009858,                                            00000800
//              DISP='NEW,CATLG,DELETE',                                  00000900
//              SPCUNIT=TRK,                                              00001000
//              PRIMARY=10,                                               00001100
//              SECNDRY=5,                                                00001200
//              OUT=A                                                     00001300
//*                                                                       00001400
//UPDATE  EXEC PGM=&PROGRAM,                                              00001500
//              REGION=50K,                                               00001600
//              TIME=(2,0) .                                              00001700
//*                                                                       00001800
//* UPDATE THE EIS DATA BASE                                              00001900
//*                                                                       00002000
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                     00002100
//              VOLUME=(PRIVATE,RETAIN),                                  00002200
//              DISP=(SHR,PASS)                                           00002300
//           DD DSNAME=SYS1.ANS.COBSUBR,                                  00002400
//              DISP=(SHR,PASS)                                           00002500
//*                                                                       00002600
//* INPUT DATA SET - TRANSACTION FILE                                     00002700
//*                                                                       00002800
//EISTRANS  DD DDNAME=INPUT,                                              00002900
//              DCB=BLKSIZE=80                                            00003000
//*                                                                       00003100
//* INPUT DATA SET - OLD MASTER DATA BASE                                 00003200
//*                                                                       00003300
//EISOLDMS  DD DSNAME=&PROJECT..DATA.&OLDMSTR,                            00003400
//              VOLUME=(PRIVATE,RETAIN),                                  00003500
//              DISP=(SHR,PASS)                                           00003600
//*                                                                       00003700
//* OUTPUT DATA SET - NEW MASTER DATA BASE                                00003800
//*                                                                       00003900
//EISMASTR  DD UNIT=&UNIT,                                                00004000
//              VOLUME=(PRIVATE,RETAIN,SER=&SERIAL),                      00004100
//              DISP=(&DISP),                                             00004200
//              SPACE=(&SPCUNIT,(&PRIMARY,&SECNDRY),RLSE),                00004300
//              DSNAME=&PROJECT..DATA.&NEWMSTR                            00004400
//*                                                                       00004500
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                 00004600
//*                                                                       00004700
//EISERROR  DD SYSOUT=&OUT                                                00004800
//*                                                                       00004900
//* OUTPUT DATA SETS - SYSTEM OPERATION                                   00005000
//*                                                                       00005100
//SYSPRINT  DD SYSOUT=&OUT                                                00005200
//*                                                                       00005300
//SYSOUT    DD SYSOUT=&OUT                                                00005400
//*                                                                       00005500
//SYSDBOUT  DD SYSOUT=&OUT                                                00005600
```

EISFUPDT Procedure

Figure 7.1.7-4

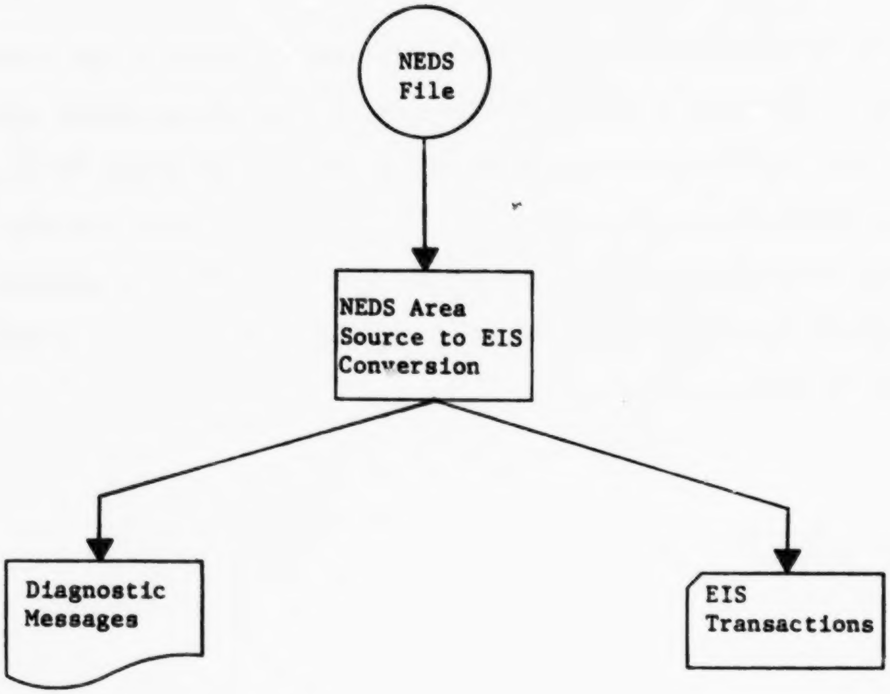
```
//*                                                                     00005700
//SYSDTERM  DD SYSOUT=&OUT                                              00005800
//*                                                                     00005900
//SYSUDUMP  DD SYSOUT=&OUT                                              00006000
//*                                                                     00006100
```

EISFUPDT Procedure

Figure 7.1.7-4 (cont.)

7.1.8 EISNACNV - NEDS AREA SOURCE TO EIS

EISNACNV is executed to convert NEDS area source records to EIS transactions. The input to the conversion program consists of a NEDS area source file and is defined by NEDSFILE. There are two output files used by the conversion program. The first, defined by EISATRAN, contains the EIS file maintenance transactions produced by the conversion program. The second, defined by EISAERRS, contains diagnostic messages generated during the conversion process.


NEDS
File
NEDS Area
Source to EIS
Conversion
Diagnostic
Messages
EIS
Transactions

EISNACNV - Data Flow
Figure 7.1.8-1

DD NAME	Description
NEDSFILE	Data set containing NEDS area source records
EISATRAN	Data set to contain generated EIS transactions
EISAEERS	Print file for diagnostic messages

EISNACNV - DDNAMES

Figure 7.1.8-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	CXASUMRY	Program to convert NEDS area source record to EIS transactions
NEDSFIL	NEDS	Lowest level index of data set containing NEDS records
EISOUT	B	Sysout class of EIS transactions
OUT	A	Sysout class of all print files

EISNACNV - Substitutable Parameters

Figure 7.1.8-3

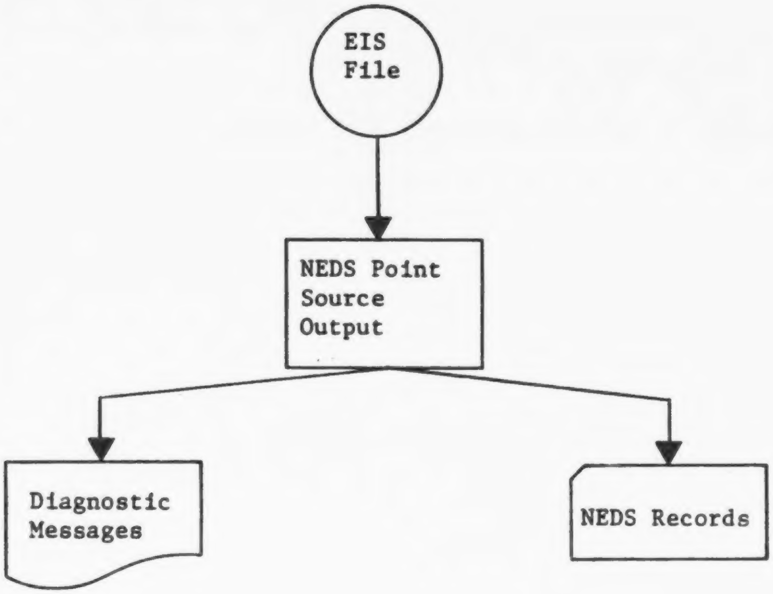
```
                         EIS CATALOGED PROCEDURES

//*            EISNACNV                 HURLEY RF         WF4   06/30/74 00000100
//*                                                                    00000200
//EISNANCV PROC PROJECT=EIS,                                           00000300
//             PROGRAM=CXASUMRY,                                       00000400
//             NEDSFIL=NEDS,                                           00000500
//             EISOUT=B,                                               00000600
//             OUT=A                                                   00000700
//*                                                                    00000800
//CONVERT EXEC PGM=&PROGRAM,                                           00000900
//             REGION=24K,                                             00001000
//             TIME=(1,0)                                              00001100
//*                                                                    00001200
//* CONVERT NEDS AREA SOURCE FILE TO EIS FORMAT                        00001300
//*                                                                    00001400
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                  00001500
//             VOLUME=(PRIVATE,RETAIN),                                00001600
//             DISP=(SHR,PASS)                                         00001700
//          DD DSNAME=SYS1.ANS.COBSUBR,                                00001800
//             DISP=(SHR,PASS)                                         00001900
//*                                                                    00002000
//* INPUT DATA SET - NEDS AREA SOURCE FILE                             00002100
//*                                                                    00002200
//NEDSFILE  DD DSNAME=&PROJECT..DATA.&NEDSFIL,                         00002300
//             VOLUME=(PRIVATE,RETAIN),                                00002400
//             DISP=(SHR,PASS)                                         00002500
//*                                                                    00002600
//* OUTPUT DATA SET - EIS TRANSACTIONS                                 00002700
//*                                                                    00002800
//EISATRAN  DD SYSOUT=&EISOUT                                          00002900
//*                                                                    00003000
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                              00003100
//*                                                                    00003200
//EISAERRS  DD SYSOUT=&OUT                                             00003300
//*                                                                    00003400
//* OUTPUT DATA SETS - SYSTEM OPERATION                                00003500
//*                                                                    00003600
//SYSPRINT  DD SYSOUT=&OUT                                             00003700
//*                                                                    00003800
//SYSOUT    DD SYSOUT=&OUT                                             00003900
//*                                                                    00004000
//SYSDBOUT  DD SYSOUT=&OUT                                             00004100
//*                                                                    00004200
//SYSOTERM  DD SYSOUT=&OUT                                             00004300
//*                                                                    00004400
//SYSUDUMP  DD SYSOUT=&OUT                                             00004500
//*                                                                    00004600
```

EISNACNV Procedure

Figure 7.1.8-4

7.1.9 EISNCONV - NEDS POINT SOURCE OUTPUT

EISNCONV is executed to produce NEDS point source data from EIS file records. The input to the program consists of an EIS file (either master or answer) and is defined by EISMASTR. There are two output files used by the program. The first, defined by NEDSFILE, contains the NEDS point source records produced by the program. The second, defined by EISPRINT, contains dianostic messages generated during the output process.


EIS
File
NEDS Point
Source
Output
Diagnostic
Messages
NEDS Records

EISNCONV - Data Flow
Figure 7.1.9-1

DD NAME	Description
EISMASTR	EIS master file
NEDSFILE	Data set to contain generated NEDS records
EISPRINT	Print file for diagnostic messages

EISNCONV - DDNAMES

Figure 7.1.9-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	NXNEDSCV	Program to convert EIS point source file to NEDS point source records
MSTRFIL	FTMSTRAA	Lowest level index of EIS file to be converted
NEDSOUT	B	Sysout class of NEDS records
OUT	A	Sysout class of all print files

EISNCONV - Substitutable Parameters

Figure 7.1.9-3

EIS CATALOGED PROCEDURES

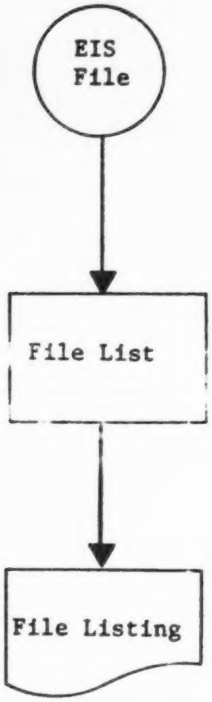
```
//*             EISNCONV                HURLEY RF         WF4   06/30/74
//*
//EISNCONV PROC PROJECT=EIS,
//              PROGRAM=NXNEDSCV,
//              MSTRFIL=FTMSTRAA,
//              NEDSOUT=B,
//              OUT=A
//*
//CONVERT EXEC PGM=&PROGRAM,
//              REGION=20K,
//              TIME=(1,0)
//*
//* CONVERT EIS POINT SOURCE FILE TO NEDS FORMAT
//*
//STEPLIB   DD DSNAME=&PROJECT..LOAD,
//              VOLUME=(PRIVATE,RETAIN),
//              DISP=(SHR,PASS)
//          DD DSNAME=SYS1.ANS.COBSUBR,
//              DISP=(SHR,PASS)
//*
//* INPUT DATA SET - EIS MASTER FILE
//*
//EISMASTR  DD DSNAME=&PROJECT..DATA.&MSTRFIL,
//              VOLUME=(PRIVATE,RETAIN),
//              DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - NEDS FILE
//*
//NEDSFILE  DD SYSOUT=&NEDSOUT
//*
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES
//*
//EISPRINT  DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SYSDBOUT  DD SYSOUT=&OUT
//*
//SYSDTERM  DD SYSOUT=&OUT
//*
//SYSUDUMP  DD SYSOUT=&OUT
//*
```

EISNCONV Procedure

Figure 7.1.9-4

7.1.10 EISPREPT - FILE LIST OUTPUT

EISPREPT is executed to produce a detailed listing of an EIS file. The input to the file list program consists of an EIS file (either master or answer) and is defined by EISMASTR. The output from the file list program consists of a detailed listing of each record in the file and is defined by EISFILE.


EIS
File
File List
File Listing

EISPREPT - Data Flow
Figure 7.1.10-1

DD NAME	Description
EISMASTR	EIS file to be listed
EISFILE	Print file for EIS file listing

EISPREPT - DDNAMES

Figure 7.1.10-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	PXFILPRT	Program to format and list EIS file
MSTRFIL	FTMSTRAA	Lowest level index of EIS file (master or answer) to be listed
OUT	A	Sysout class of all print files

EISPREPT - Substitutable Parameters

Figure 7.1.10-3

```
                                 EIS CATALOGED PROCEDURES

//*            EISPREPT                  HURLEY RF         WF4    06/30/74
//*
//EISPREPT PROC PROJECT=EIS,
//             PROGRAM=PXFILPRT,
//             MSTRFIL=FTMSTRAA,
//             OUT=A
//*
//REPORT  EXEC PGM=&PROGRAM,
//             TIME=(1,0),
//             REGION=24K
//*
//* FORMAT EIS MASTER FILE
//*
//STEPLIB   DD DSNAME=&PROJECT..LOAD,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//          DD DSNAME=SYS1.ANS.COBSUBR,
//             DISP=(SHR,PASS)
//*
//* INPUT DATA SET - EIS MASTER FILE
//*
//EISMASTR  DD DSNAME=&PROJECT..DATA.&MSTRFIL,
//             VOLUME=(PRIVATE,RETAIN),
//             DISP=(SHR,PASS)
//*
//* OUTPUT DATA SET - FORMATTED LISTING OF EIS MASTER FILE
//*
//EISFILE   DD SYSOUT=&OUT
//*
//* OUTPUT DATA SETS - SYSTEM OPERATION
//*
//SYSPRINT  DD SYSOUT=&OUT
//*
//SYSOUT    DD SYSOUT=&OUT
//*
//SYSDBOUT  DD SYSOUT=&OUT
//*
//SYSDTERM  DD SYSOUT=&OUT
//*
//SYSUDUMP  DD SYSOUT=&OUT
//*
```

EISPREPT Procedure

Figure 7.1.10-4

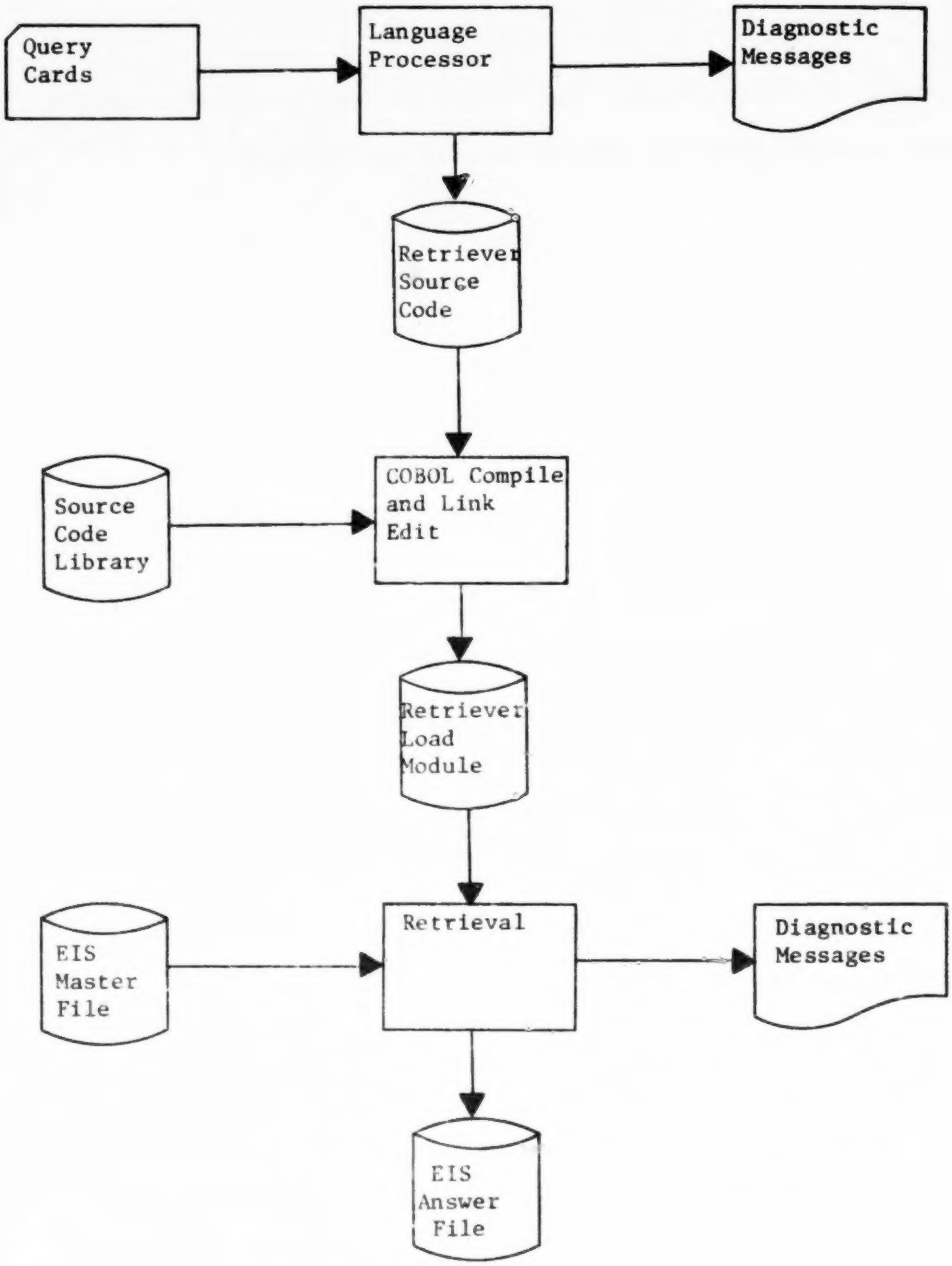
7.1.11 EISRETVR - RETRIEVAL

EISRETVR is executed to retrieve an answer file from the EIS master file. The procedure consists of four separate steps.

The first step, the retrieval language processor, generates a COBOL program to perform the actual retrieval of the answer file. The input to the language processor consists of retrieval query cards specifying the qualifications of the answer file to be retrieved and is defined by CINPUT. There are two output data sets used by the language processor. The first, defined by COUTPUT, contains the COBOL source code produced by the language processor. The second, defined by CERROR, contains diagnostic messages generated during the language processing process.

The second step, the COBOL compiler, compiles the source code produced by the language processor and produces an object module which is passed to the third step, the linkage editor. The linkage editor combines the retriever object code with COBOL subroutines and produces an executable load module of the retriever program.

The fourth step, the retriever, processes the EIS master file and produces the answer file. The input to the retriever consists of the EIS master file and is defined by RINPUT. There are two output files used by the retriever. The first, defined by ROUTPUT, contains the answer file produced by the retriever. The second, defined by RERROR, contains diagnostic messages generated during the retrieval process.


Query Cards
Language Processor
Diagnostic Messages
Retriever Source Code
Source Code Library
COBOL Compile and Link Edit
Retriever Load Module
EIS Master File
Retrieval
Diagnostic Messages
EIS Answer File

EISRETVR - Data Flow

Figure 7.1.11-1

DD NAME	Description
CINPUT	Retrieval query cards
COUTPUT	COBOL retrieval program source code
CERROR	Print file for diagnostic messages
RINPUT	EIS master file from which answer file is to be retrieved
RERROR	Print file for diagnostic messages
ROUTPUT	Answer file retrieved from EIS master file.

EISRETVR - DDNAMES

Figure 7.1.11-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
PROGRAM	RXCMAIN1	Program to generate retrieval program
MSTRFIL	FTMSTRAA	Lowest level index of EIS master file from which answer file is to be retrieved
ANSWRFL	ANSWER	Lowest level index of EIS answer file
UNIT	2314	Unit type upon which answer file is to reside
SERIAL	009858	Volume serial of volume upon which answer file is to reside
DISP	'NEW, PASS, DELETE'	Disposition of answer file
SPCUNIT	TRK	Units in which space for the answer file is to be allocated
PRIMARY	10	Number of units to be allocated for the answer file's primary allocation
SECNDRY	5	Number of units to be allocated for the answer file's secondary allocation
TEMP	SYSOUT	Unit type for temporary work space
SORTSPC	50	Number of tracks to be allocated for sort work space
OUT	A	Sysout class of all print files

EISRETVT - Substitutable Parameters
Figure 7.1.11-3

EIS CATALOGED PROCEDURES

```
//*            EISRETVR               HURLEY RF         WF4   06/30/74 00000100
//*                                                                    00000200
//EISRETVR PROC PROJECT=EIS,                                           00000300
//             PROGRAM=RXCMAIN1,                                       00000400
//             TEMP=SYSOUT,                                            00000500
//             SORTSPC=50,                                             00000600
//             OUT=A,                                                  00000700
//             MSTRFIL=FTMSTRAA,                                       00000800
//             ANSWRFL=ANSWER,                                         00000900
//             UNIT=2314,                                              00001000
//             SERIAL=009858,                                          00001100
//             DISP='NEW,PASS,DELETE',                                 00001200
//             SPCUNIT=TRK,                                            00001300
//             PRIMARY=10,                                             00001400
//             SECNDRY=5                                               00001500
//*                                                                    00001600
//COMPILE EXEC PGM=&PROGRAM,                                           00001700
//             REGION=26K,                                             00001800
//             TIME=(1,0)                                              00001900
//*                                                                    00002000
//* PRODUCE EIS RETRIEVAL PROGRAM                                      00002100
//*                                                                    00002200
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                  00002300
//             VOLUME=(PRIVATE,RETAIN),                                00002400
//             DISP=(SHR,PASS)                                         00002500
//          DD DSNAME=SYS1.ANS.COBSUBR,                                00002600
//             DISP=(SHR,PASS)                                         00002700
//*                                                                    00002800
//* INPUT DATA SET - RETRIEVAL REQUEST CARDS                           00002900
//*                                                                    00003000
//CINPUT    DD DDNAME=INPUT,                                           00003100
//             DCB=BLKSIZE=80                                          00003200
//*                                                                    00003300
//* OUTPUT DATA SET - COBOL RETRIEVAL PROGRAM SOURCE CODE              00003400
//*                                                                    00003500
//COUTPUT   DD UNIT=&TEMP,                                             00003600
//             DISP=(NEW,PASS),                                        00003700
//             SPACE=(TRK,(5,2),RLSE),                                 00003800
//             DSNAME=&&PROGRAM                                        00003900
//*                                                                    00004000
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                              00004100
//*                                                                    00004200
//CERROR    DD SYSOUT=&OUT                                             00004300
//*                                                                    00004400
//* OUTPUT DATA SETS - SYSTEM OPERATION                                00004500
//*                                                                    00004600
//SYSPRINT  DD SYSOUT=&OUT                                             00004700
//*                                                                    00004800
//SYSOUT    DD SYSOUT=&OUT                                             00004900
//*                                                                    00005000
//SYSDBOUT  DD SYSOUT=&OUT                                             00005100
//*                                                                    00005200
//SYSDTERM  DD SYSOUT=&OUT                                             00005300
//*                                                                    00005400
//SYSUDUMP  DD SYSOUT=&OUT                                             00005500
//*                                                                    00005600
```

EISRETVR Procedure

Figure 7.1.11-4

EIS CATALOGED PROCEDURES

```
//COBOL    EXEC PGM=IKFCBL00,                                        00005700
//              PARM='SIZE=94K,BUF=10K,NOSEQ,NOSOURCE,FLAGE',        00005800
//              REGION=100K,                                         00005900
//              TIME=(2,0)                                           00006000
//*                                                                  00006100
//* COMPILE RETFIEVAL PROGRAM                                        00006200
//*                                                                  00006300
//STEPLIB   DD DSNAME=SYS1.ANS.COBLIB,                               00006400
//              DISP=(SHR,PASS)                                      00006500
//*                                                                  00006600
//* INPUT DATA SET - SOURCE LIBRARY                                  00006700
//*                                                                  00006800
//SYSLIB    DD DSNAME=&PROJECT..SOURCE,                              00006900
//              VOLUME=(PRIVATE,RETAIN),                             00007000
//              DISP=(SHR,PASS)                                      00007100
//*                                                                  00007200
//* INPUT DATA SET - COBOL RETRIEVAL PROGRAM SOURCE CODF             00007300
//*                                                                  00007400
//SYSIN     DD DSNAME=&&PROGRAM,                                     00007500
//              DISP=(OLD,DELETE)                                    00007600
//*                                                                  00007700
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                            00007800
//*                                                                  00007900
//SYSPRINT  DD SYSOUT=&OUT                                           00008000
//*                                                                  00008100
//* OUTPUT DATA SET - COBOL RETRIEVAL PROGRAM OBJECT COD             00008200
//*                                                                  00008300
//SYSLIN    DD UNIT=&TEMP,                                           00008400
//              DISP=(NEW,PASS),                                     00008500
//              SPACE=(TRK,(5,2),RLSE),                              00008600
//              DSNAME=&&OBJMOD                                      00008700
//*                                                                  00008800
//* UTILITY DATA SETS                                                00008900
//*                                                                  00009000
//SYSUT1    DD UNIT=&TEMP,                                           00009100
//              SPACE=(TRK,(50,100))                                 00009200
//*                                                                  00009300
//SYSUT2    DD UNIT=(&TEMP,SEP=SYSUT1),                              00009400
//              SPACE=(TRK,(50,100))                                 00009500
//*                                                                  00009600
//SYSUT3    DD UNIT=(&TEMP,SEP=(SYSUT1,SYSUT2)),                     00009700
//              SPACE=(TRK,(50,100))                                 00009800
//*                                                                  00009900
//SYSUT4    DD UNIT=(&TEMP,SEP=(SYSUT1,SYSUT2,SYSUT3)),              00010000
//              SPACE=(TRK,(50,100))                                 00010100
//*                                                                  00010200
//LKED     EXEC PGM=IEWL,                                            00010300
//              PARM='LIST,LET,XREF',                                00010400
//              REGION=100K,                                         00010500
//              TIME=(1,0)                                           00010600
//*                                                                  00010700
//* LINK-EDIT RETRIEVAL                                              00010800
//*                                                                  00010900
//*                                                                  00011000
//* INPUT DATA SET - AUTO-CALL LIBRARY                               00011100
//*                                                                  00011200
```

EISRETVR Procedure

Figure 7.1.11-4 (cont.)

```
//SYSLIB    DD DSNAME=&PROJECT..LOAD,                                       00011300
//              VOLUME=(PRIVATE,RETAIN),                                    00011400
//              DISP=(SHR,PASS)                                             00011500
//          DD DSNAME=SYS1.ANS.COBSUBR,                                     00011600
//              VOLUME=(PRIVATE,RETAIN),                                    00011700
//              DISP=(SHR,PASS)                                             00011800
//*                                                                         00011900
//* INPUT DATA SET - COBOL RETRIEVAL PROGRAM OBJECT CODE                    00012000
//*                                                                         00012100
//SYSLIN    DD DSNAME=&&OBJMOD,                                             00012200
//              DISP=(OLD,DELETE)                                           00012300
//          DD DDNAME=INPUT,                                                00012400
//              DCB=BLKSIZE=80                                              00012500
//*                                                                         00012600
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                   00012700
//*                                                                         00012800
//SYSPRINT  DD SYSOUT=&OUT                                                  00012900
//*                                                                         00013000
//* OUTPUT DATA SET - COBOL RETRIEVAL PROGRAM LOAD MODULE                   00013100
//*                                                                         00013200
//SYSLMOD   DD UNIT=&TEMP,                                                  00013300
//              DISP=(MOD,PASS),                                            00013400
//              SPACE=(TRK,(10,5,1)),                                       00013500
//              DSNAME=&&LOADMOD(RETRIEVE)                                  00013600
//*                                                                         00013700
//* UTILITY DATA SET                                                        00013800
//*                                                                         00013900
//SYSUT1    DD UNIT=&TEMP,                                                  00014000
//              SPACE=(TRK,(10,5))                                          00014100
//*                                                                         00014200
//RETRIEVE EXEC PGM=*.LKED.SYSLMOD,                                         00014300
//              REGION=40K,                                                 00014400
//              TIME=(1,0)                                                  00014500
//*                                                                         00014600
//* RETRIEVE RECORDS FROM EIS MASTER FILE                                   00014700
//*                                                                         00014800
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                       00014900
//              VOLUME=(PRIVATE,RETAIN),                                    00015000
//              DISP=(SHR,PASS)                                             00015100
//          DD DSNAME=SYS1.ANS.COBSUBR,                                     00015200
//              DISP=(SHR,PASS)                                             00015300
//*                                                                         00015400
//* INPUT DATA SET - EIS MASTER FILE                                        00015500
//*                                                                         00015600
//RINPUT    DD DSNAME=&PROJECT..DATA.&MSTRFIL,                              00015700
//              VOLUME=(PRIVATE,RETAIN),                                    00015800
//              DISP=(SHR,PASS)                                             00015900
//*                                                                         00016000
//* INPUT DATA SET - SORT PROGRAM LIBRARY                                   00016100
//*                                                                         00016200
//SORTLIB   DD DSNAME=SYS1.SORTLIB,                                         00016300
//              VOLUME=(PRIVATE,RETAIN),                                    00016400
//              DISP=(SHR,PASS)                                             00016500
//*                                                                         00016600
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                                   00016700
//*                                                                         00016800
```

EISRETVR Procedure

Figure 7.1.11-4 (cont.)

EIS CATALOGED PROCEDURES

```
//RERROR    DD SYSOUT=&OUT                                                  00016900
//*                                                                         00017000
//* OUTPUT DATA SET - RECORUS RETRIEVED FROM EIS MASTER FILE                00017100
//*                                                                         00017200
//ROUTPUT   DD UNIT=&UNIT,                                                  00017300
//             VOLUME=(PRIVATE.RETAIN.SER=&SERIAL),                         00017400
//             DISP=(&DISP).                                                00017500
//             SPACE=(&SPCUNIT.(&PRIMARY.&SECNDRY).RLSE),                   00017600
//             DSNAME=&PRUJECT..UATA.&ANSWRFL                               00017700
//*                                                                         00017800
//* UTILITY DATA SETS                                                       00017900
//*                                                                         00018000
//SURTWK01  DD UNIT=&TEMP,                                                  00018100
//             SPACE=(TRK,(&SORTSPC),,CONTIG)                               00018200
//*                                                                         00018300
//SORTWK02  DD UNIT=(&TEMP,SEP=SURTWK01),                                   00018400
//             SPACE=(TRK,(&SORTSPC),,CONTIG)                               00018500
//*                                                                         00018600
//SORTWK03  DD UNIT=(&TEMP,SEP=(SURTWK01,SORTWK02)),                        00018700
//             SPACE=(TRK,(&SORTSPC),,CONTIG)                               00018800
//*                                                                         00018900
//* OUTPUT DATA SETS - SYSTEM UPERATION                                     00019000
//*                                                                         00019100
//SYSPRINT  DD SYSUUT=&OUT                                                  00019200
//*                                                                         00019300
//SYSOUT    DD SYSOUT=&OUT                                                  00019400
//*                                                                         00019500
//SYSDROUT  DD SYSOUT=&OUT                                                  00019600
//*                                                                         00019700
//SYSDTERM  DD SYSOUT=&OUT                                                  00019800
//*                                                                         00019900
//SYSUDUMP  DD SYSOUT=&OUT                                                  00020000
//*                                                                         00020100
```

EISRETVR Procedure

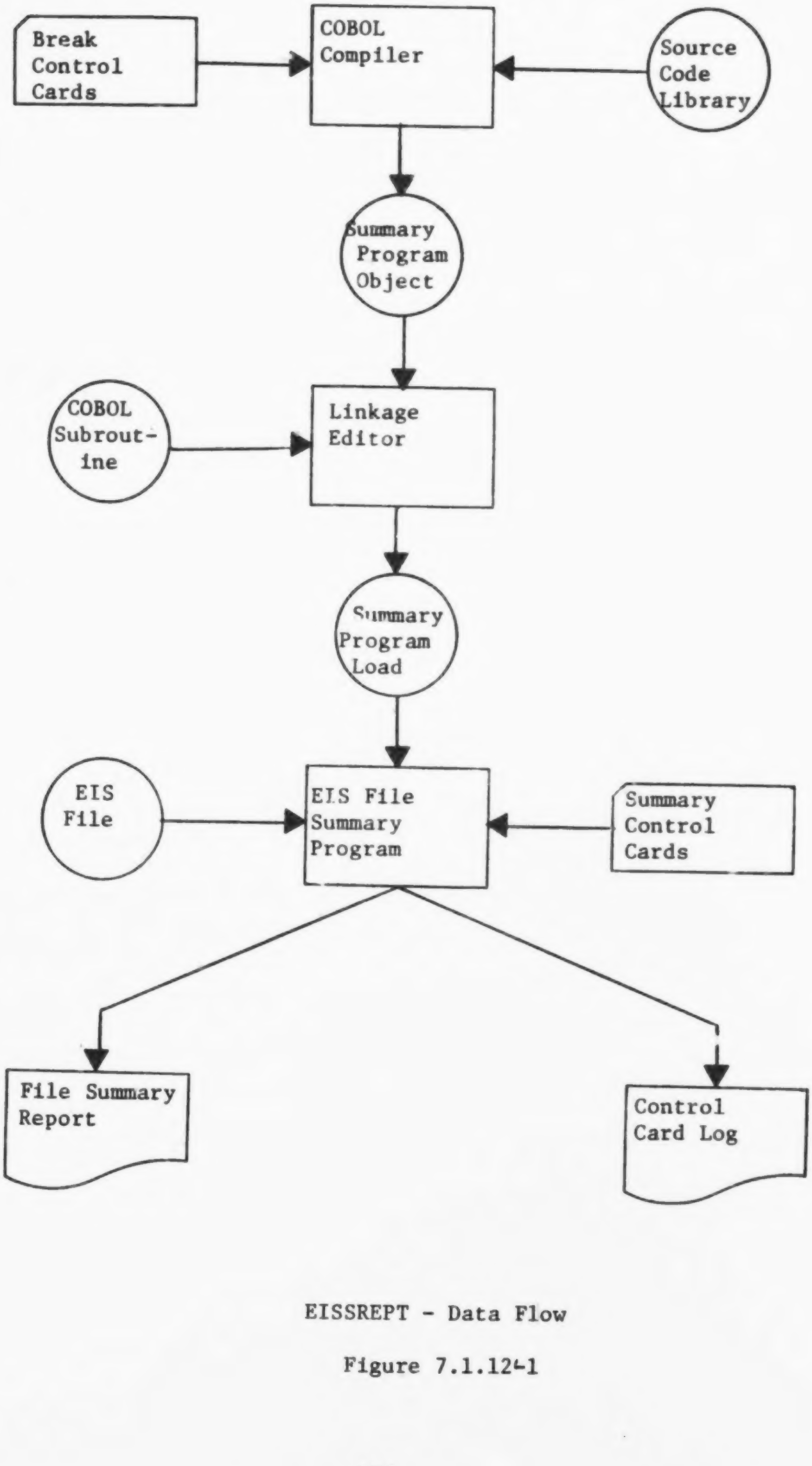
Figure 7.1.11-4 (cont.)

7.1.12 EISSREPT - SUMMARY REPORT OUTPUT

EISSREPT is executed to produce a summary report of an EIS file (either master or answer). The procedure consists of three separate steps.

The first step, the COBOL compiler, compiles the skeleton summary program with user supplied control cards. The input to the COBOL compiler consists of COBOL statements controlling the breaks in the report to be produced. The output from the COBOL compiler consists of an object module which is passed to the second step, the linkage editor. The linkage editor combines the summary program object code with COBOL subroutines and produces an executable load module of the summary report program.

The third step, the summary report program, generates the summary of the EIS file. There are two input files used by the summary program. The first, defined by SUMCARDS, contains the control cards for the titling of the report. The second, defined by EISFILE, contains the EIS file to be summarized. There are two output files used by the summary program. The first, defined by CARDLOG, contains the control card log. The second, defined by SUMFILE, contains the summary report of the EIS file.


Break Control Cards
COBOL Compiler
Source Code Library
Summary Program Object
COBOL Subroutine
Linkage Editor
Summary Program Load
EIS File
EIS File Summary Program
Summary Control Cards
File Summary Report
Control Card Log

EISSREPT - Data Flow

Figure 7.1.12-1

DD NAME	Description
SUMCARDS	Control cards for summary report
EISFILE	EIS file to be summarized
CARDLOG	Print file for control card log
SUMFILE	Print file for summary report

EISSREPT - DDNAMES

Figure 7.1.12-2

Parameter Name	Default Value	Description
PROJECT	EIS	Highest level index of data set names (e.g., EIS.DATA.EFTABLE)
MEMBER	BDSUMARY	Name of first member of summary program
M2	BDFILSEC	Name of second member
M3	BDWORK77	Name of third member
M4	BDWORK01	Name of fourth member
M5	BDRPTSEC	Name of fifth member
M6	BPSUMARY	Name of sixth member
MSTRFIL	FTMSTRAA	Lowest level index of EIS file to be summarized
TEMP	SYSOUT	Unit type to be used for temporary workspace
OUT	A	Sysout class for all print files

EISSREPT - Substitutable Parameters

Figure 7.1.12-3

EIS CATALOGED PROCEDURES

```
//*           EISSREPT                HURLEY RF        WF4   06/30/74 00000100
//*                                                                   00000200
//ESISREPT PROC PROJECT=EIS,                                          00000300
//            TEMP=SYSOUT,                                            00000400
//            MSTRFIL=FTMSTRAA,                                       00000500
//            MEMBER=BDSUMARY,                                        00000600
//            M2=BDFILSEC,                                            00000700
//            M3=BDWORK77,                                            00000800
//            M4=BDWORK01,                                            00000900
//            M5=BDRPTSEC,                                            00001000
//            M6=BPSUMARY,                                            00001100
//            OUT=A                                                   00001200
//*                                                                   00001300
//COMPILE EXEC PGM=IKFCBL00,                                          00001400
//            PARM='SIZE=94K,BUF=10K,NOSEQ,NOSOURCE',                 00001500
//            REGION=100K,                                            00001600
//            TIME=(2,0)                                              00001700
//*                                                                   00001800
//* COMPILE EIS SUMMARY PROGRAM                                       00001900
//*                                                                   00002000
//STEPLIB   DD DSNAME=SYS1.ANS.COBLIB,                                00002100
//            DISP=(SHR,PASS)                                         00002200
//*                                                                   00002300
//* INPUT DATA SET - SOURCE LIBRARY                                   00002400
//*                                                                   00002500
//SYSLIB    DD DSNAME=&PROJECT..SOURCE,                               00002600
//            VOLUME=(PRIVATE,RETAIN),                                00002700
//            DISP=(SHR,PASS)                                         00002800
//*                                                                   00002900
//* INPUT DATA SET - COBOL SUMMARY PROGRAM SOURCE CODE                00003000
//*                                                                   00003100
//SYSIN     DD DSNAME=&PROJECT..SOURCE(&MEMBER),                      00003200
//            VOLUME=(PRIVATE,RETAIN),                                00003300
//            DISP=(SHR,PASS)                                         00003400
//*                                                                   00003500
//          DD DSNAME=&PROJECT..SOURCE(&M2),                          00003600
//            VOLUME=(PRIVATE,RETAIN),                                00003700
//            DISP=(SHR,PASS)                                         00003800
//*                                                                   00003900
//          DD DSNAME=&PROJECT..SOURCE(&M3),                          00004000
//            VOLUME=(PRIVATE,RETAIN),                                00004100
//            DISP=(SHR,PASS)                                         00004200
//*                                                                   00004300
//          DD DSNAME=&PROJECT..SOURCE(&M4),                          00004400
//            VOLUME=(PRIVATE,RETAIN),                                00004500
//            DISP=(SHR,PASS)                                         00004600
//*                                                                   00004700
//          DD DSNAME=&PROJECT..SOURCE(&M5),                          00004800
//            VOLUME=(PRIVATE,RETAIN),                                00004900
//            DISP=(SHR,PASS)                                         00005000
//*                                                                   00005100
//          DD DSNAME=&PROJECT..SOURCE(&M6),                          00005200
//            VOLUME=(PRIVATE,RETAIN),                                00005300
//            DISP=(SHR,PASS)                                         00005400
//*                                                                   00005500
//          DD DDNAME=INPUT,                                          00005600
```

EISSREPT Procedure

Figure 7.1.12-4

EIS CATALOGED PROCEDURES

```
//             DCB=BLKSIZE=80                                           00005700
//*                                                                     00005800
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                               00005900
//*                                                                     00006000
//SYSPRINT  DD SYSOUT=&OUT                                              00006100
//*                                                                     00006200
//* OUTPUT DATA SET - COBOL SUMMARY PROGRAM OBJECT CODE                 00006300
//*                                                                     00006400
//SYSLIN    DD UNIT=&TEMP,                                              00006500
//             DISP=(NEW,PASS),                                         00006600
//             SPACE=(TRK,(5,2),RLSE),                                  00006700
//             DSNAME=&&OBJMOD                                          00006800
//*                                                                     00006900
//* UTILITY DATA SETS                                                   00007000
//*                                                                     00007100
//SYSUT1    DD UNIT=&TEMP,                                              00007200
//             SPACE=(TRK,(50,100))                                     00007300
//*                                                                     00007400
//SYSUT2    DD UNIT=(&TEMP,SEP=SYSUT1),                                 00007500
//             SPACE=(TRK,(50,100))                                     00007600
//*                                                                     00007700
//SYSUT3    DD UNIT=(&TEMP,SEP=(SYSUT1,SYSUT2)),                        00007800
//             SPACE=(TRK,(50,100))                                     00007900
//*                                                                     00008000
//SYSUT4    DD UNIT=(&TEMP,SEP=(SYSUT1,SYSUT2,SYSUT3)),                 00008100
//             SPACE=(TRK,(50,100))                                     00008200
//*                                                                     00008300
//LKED    EXEC PGM=IEWL,                                                00008400
//             PARM='LIST,LET,XREF',                                    00008500
//             REGION=100K,                                             00008600
//             TIME=(1,0)                                               00008700
//*                                                                     00008800
//* LINK-EDIT SUMMARY PROGRAM                                           00008900
//*                                                                     00009000
//*                                                                     00009100
//* INPUT DATA SET - AUTO-CALL LIBRARY                                  00009200
//*                                                                     00009300
//SYSLIB    DD DSNAME=&PROJECT..LOAD,                                   00009400
//             VOLUME=(PRIVATE,RETAIN),                                 00009500
//             DISP=(SHR,PASS)                                          00009600
//          DD DSNAME=SYS1.ANS.COBSUBR,                                 00009700
//             VOLUME=(PRIVATE,RETAIN),                                 00009800
//             DISP=(SHR,PASS)                                          00009900
//*                                                                     00010000
//* INPUT DATA SET - COBOL SUMMARY PROGRAM OBJECT CODE                  00010100
//*                                                                     00010200
//SYSLIN    DD DSNAME=&&OBJMOD,                                         00010300
//             DISP=(OLD,DELETE)                                        00010400
//          DD DDNAME=INPUT,                                            00010500
//             DCB=BLKSIZE=80                                           00010600
//*                                                                     00010700
//* OUTPUT DATA SET - DIAGNOSTIC MESSAGES                               00010800
//*                                                                     00010900
//SYSPRINT  DD SYSOUT=&OUT                                              00011000
//*                                                                     00011100
//* OUTPUT DATA SET - COBOL SUMMARY PROGRAM LOAD MODULE                 00011200
```

EISSREPT Procedure

Figure 7.1.12-4 (cont.)

```
//*                                                                     00011300
//SYSLMOD   DD UNIT=&TEMP,                                              00011400
//             DISP=(MOD,PASS),                                         00011500
//             SPACE=(TRK,(10,5,1)),                                    00011600
//             DSNAME=&&LOADMOD(SUMMARY)                                00011700
//*                                                                     00011800
//* UTILITY DATA SET                                                    00011900
//*                                                                     00012000
//SYSUT1    DD UNIT=&TEMP,                                              00012100
//             SPACE=(TRK,(10,5))                                       00012200
//*                                                                     00012300
//SUMMARY EXEC PGM=*.LKED.SYSLMOD,                                      00012400
//             REGION=30K,                                              00012500
//             TIME=(1,0)                                               00012600
//*                                                                     00012700
//* PRODUCE EIS SUMMARY REPORT                                          00012800
//*                                                                     00012900
//STEPLIB   DD DSNAME=&PROJECT..LOAD,                                   00013000
//             VOLUME=(PRIVATE,RETAIN),                                 00013100
//             DISP=(SHR,PASS)                                          00013200
//          DD DSNAME=SYS1.ANS.COBSUBR,                                 00013300
//             DISP=(SHR,PASS)                                          00013400
//*                                                                     00013500
//* INPUT DATA SET - CONTROL CARDS                                      00013600
//*                                                                     00013700
//SUMCARDS  DD DDNAME=INPUT,                                            00013800
//             DCB=BLKSIZE=80                                           00013900
//*                                                                     00014000
//* INPUT DATA SET - EIS MASTER FILE                                    00014100
//*                                                                     00014200
//EISFILE   DD DSNAME=&PROJECT..DATA.&MSTRFIL,                          00014300
//             VOLUME=(PRIVATE,RETAIN),                                 00014400
//             DISP=(SHR,PASS)                                          00014500
//*                                                                     00014600
//* OUTPUT DATA SET - CONTROL CARD LOG                                  00014700
//*                                                                     00014800
//CARDLOG   DD SYSOUT=&OUT                                              00014900
//*                                                                     00015000
//* OUTPUT DATA SET - SUMMARY REPORT                                    00015100
//*                                                                     00015200
//SUMFILE   DD SYSOUT=&OUT                                              00015300
//*                                                                     00015400
//* OUTPUT DATA SETS - SYSTEM OPERATION                                 00015500
//*                                                                     00015600
//SYSPRINT  DD SYSOUT=&OUT                                              00015700
//*                                                                     00015800
//SYSOUT    DD SYSOUT=&OUT                                              00015900
//*                                                                     00016000
//SYSDBOUT  DD SYSOUT=&OUT                                              00016100
//*                                                                     00016200
//SYSDTERM  DD SYSOUT=&OUT                                              00016300
//*                                                                     00016400
//SYSUDUMP  DD SYSOUT=&OUT                                              00016500
//*                                                                     00016600
```

EISSREPT Procedure

Figure 7.1.12-4 (cont.)

7.2 USE OF CATALOGED PROCEDURES

The following section gives an example of how to use the cataloged procedures. The sample run described in this section creates an EIS master file, retrieves an answer file from it, lists the answer file and produces a summary report. Figure 7.2-1 illustrates the job control cards required to perform this run.

The first step creates an EIS master file named EIS.DATA.FTMSTRAA. Since the file is being newly created rather than updated, the DDNAME EISOLDMS is nullified with a DD DUMMY statement to indicate that no old master file exists. The file maintenance transactions must consist entirely of "Add" transactions. After the file has been created, it is cataloged by the JCL so that it may be referred to by succeeding steps without supplying specific location information.

The second step involves the retrieval language processor to read the queries and generate a retriever program. The program will be compiled with the parameters specified on the EXEC card rather than those in the procedure. An answer file named EIS.DATA.ANSWER will be produced and passed to later steps. It may be referred to by succeeding steps as if it has been cataloged. However, it will be deleted at the end of the job.

Step three invokes the file list program to list the answer file.

The final step merges the COBOL break control statements with the skeleton summary report program and compiles it. Again the parameters used during compilation will be overridden by the EXEC statement. The control cards defined by SUMMARY.INPUT will control the titling of the summary report.

```
//STEP1 EXEC EISFUPDT,
//           NEWMSTR=FTMSTRAA
//UPDATE.EISOLDMS DD DUMMY
//UPDATE.INPUT DD *
      (EIS file maintenance transactions)
/*
//STEP2 EXEC EISRETVR
//COMPILE.INPUT DD *
      (EIS retrieval queries)
/*
//STEP3 EXEC EISPREPT
             MSTRFIL=ANSWER
//STEP4 EXEC EISSREPT,
//           MSTRFIL=ANSWER
//COMPILE.INPUT DD *
      (COBOL break control statements)
/*
//SUMMARY.INPUT DD *
      (EIS summary report control cards)
/*
```

Sample EIS Job Stream

Figure 7.2-1

APPENDIX

This appendix presents sample system runs. In the samples the transactions, files, and tables are represented as residing on disk, tape and card and are shown changing media during and between runs. This is not a system requirement but is mearly to indicate the flexibility of external data storage. The following is not an exhaustive list of possible system program combinations but is a sample of possible uses.

Figure A-1 shows a system start up run. There are no existing files for the Emission Factor Table, or the Master File. The first step is to create an Emission Factor Table using program EXTBGN. The table can then be used to insert the new Emission Factors into EIS transactions. The NEDS Point Source Transactions are run through program CXNEDSCV to convert them to the EIS input transaction format. The NEDS transaction cards are put into a hold file.

The new EIS transactions can now be used as input to program EXEFIX which will use the Emission Factor Table to insert the emission factors into the transactions. These updated EIS transactions can then be used to create a master file using program FXFILMNT. Notice that there is no old master file being used in this run.

Figure A-2 shows the conversion of NEDS Area Source Transactions into EIS transactions using program CXASUMRY. The EIS transactions are then run through program EXEFIX. In this run, since the Emission Factor Table already exists, we use it to insert the emission factors into the EIS transactions.

The new transactions are now used to update the existing Master File using FXFILMNT. The old master file should be kept until the next update has been run. This will provide a backup file in case anything happens to the current master file. At this point the master file may be listed using program PXFILPRT. The formatted listing provides a further backup for the file. The entire file should be listed periodically to provide current file status checks.

Figure A-3 shows the retrieval program (RXCAMAIN1) being used to select the Area Source records from the master file. The File Print Program PXFILPRT is used to print a formatted listing of the Answer File. The program AXSNEDS used the Answer File and produces the NEDS Area Source Cards. The Area Source cards may be listed using program HXANREPT which produces a formatted list of the NEDS formats.

Figure A-4 shows the retrieval program RXCMAIN1 being used to select the Point Source records from the master file. The answer file from this retrieval is then listed using program PXFILPRT. The answer set is then used as input to program NXNEDSCV which converts it to NEDS Point Source Cards. The NEDS cards can then be used to file the quarterly NEDS report.

Figure A-5 shows the retrieval program RXCMAIN1 being used to select a set of data based on the requirements of the Request Cards. A formatted detail listing of the answer set is produced by program PXFILPRT. The information in the answer set is summarized by program EISSREPT to produce the EIS Summary Report.

Figures A-6 through A-8 are the EIS card input forms for point source data.

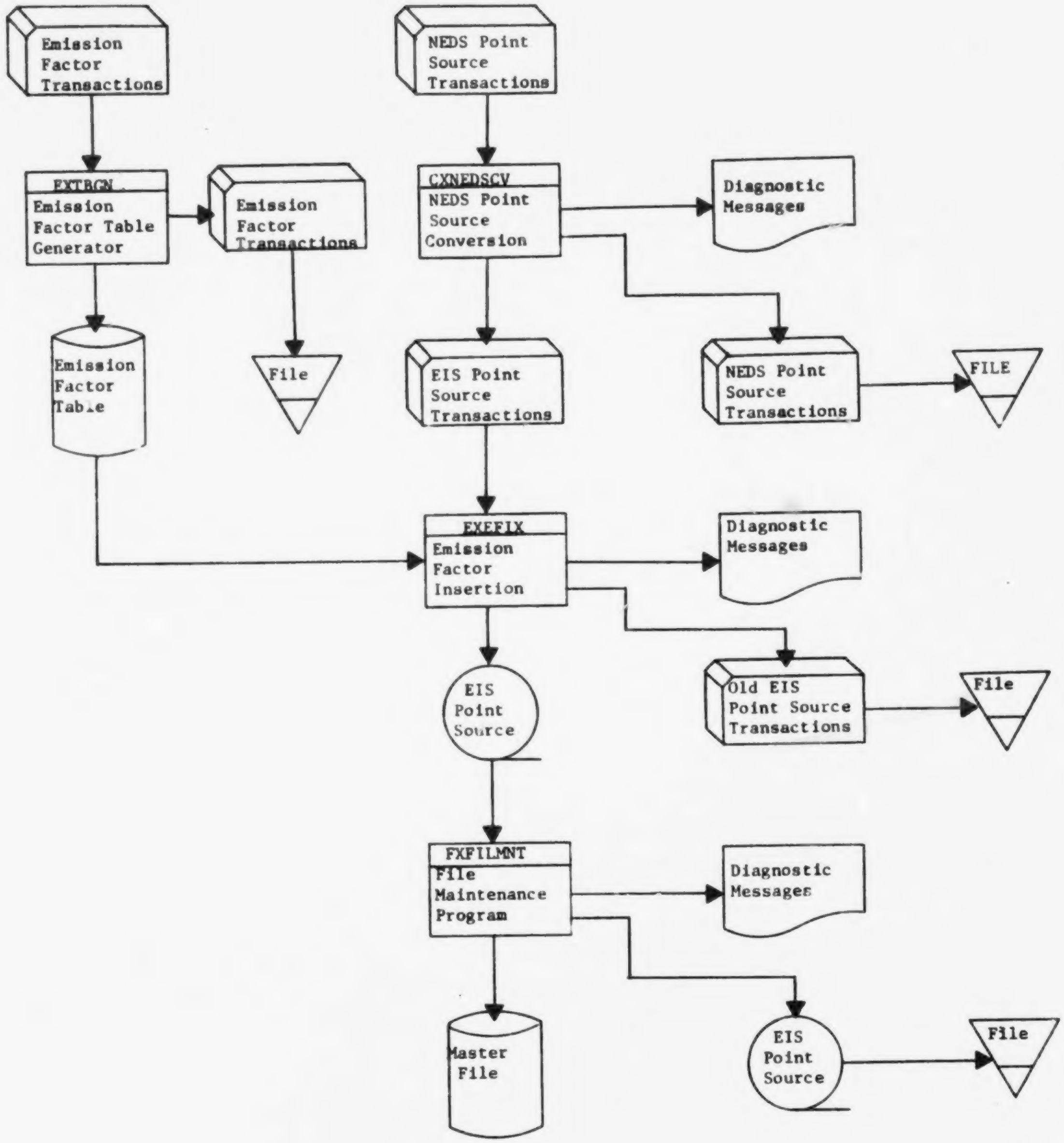

Emission Factor Transactions
NEDS Point Source Transactions
FXTBGN
Emission Factor Table Generator
Emission Factor Transactions
CXNEDSCV
NEDS Point Source Conversion
Diagnostic Messages
Emission Factor Table
File
EIS Point Source Transactions
NEDS Point Source Transactions
FILE
EXEFIX
Emission Factor Insertion
Diagnostic Messages
EIS Point Source
Old EIS Point Source Transactions
File
FXFILMNT
File Maintenance Program
Diagnostic Messages
Master File
EIS Point Source
File

Figure A-1

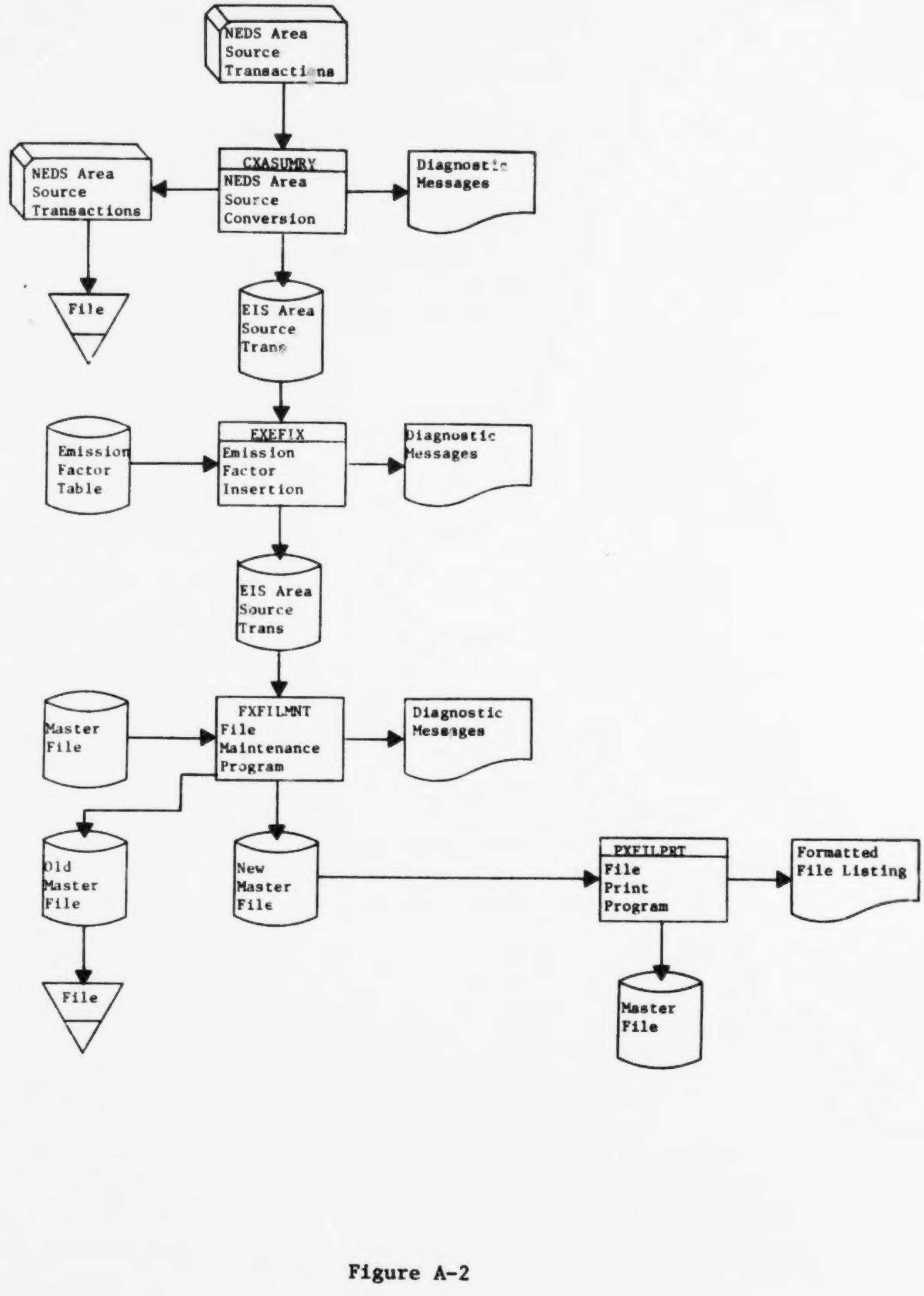

NEDS Area Source Transactions
CXASUMRY
NEDS Area Source Conversion
NEDS Area Source Transactions
Diagnostic Messages
File
EIS Area Source Trans
Emission Factor Table
EXEFIX
Emission Factor Insertion
Diagnostic Messages
EIS Area Source Trans
Master File
FXFILMNT
File Maintenance Program
Diagnostic Messages
Old Master File
New Master File
PXFILPRT
File Print Program
Formatted File Listing
File
Master File

Figure A-2

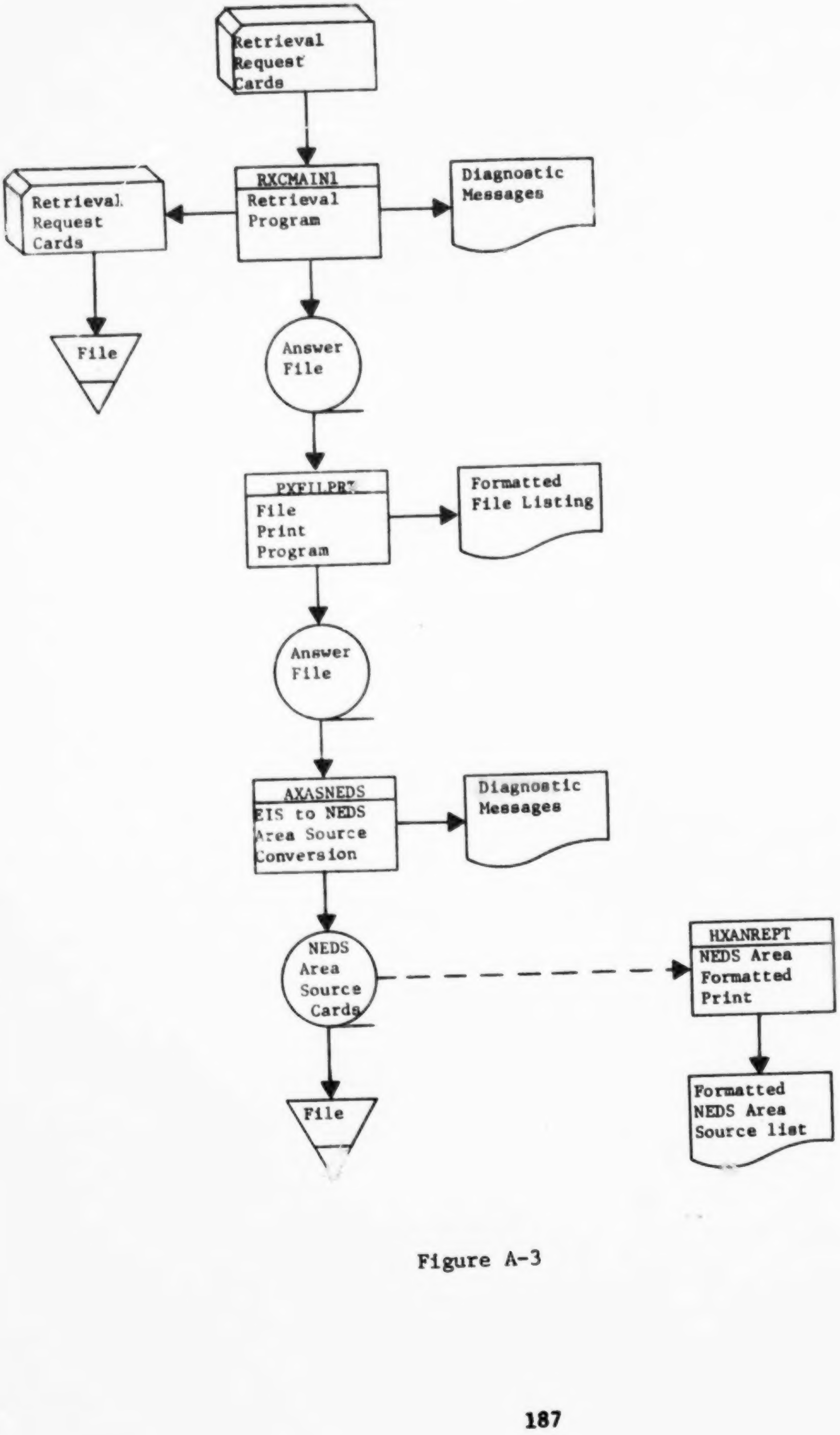

Retrieval Request Cards
RXCMAIN1
Retrieval Program
Diagnostic Messages
Retrieval Request Cards
File
Answer File
PXFILPRT
File Print Program
Formatted File Listing
Answer File
AXASNEDS
EIS to NEDS Area Source Conversion
Diagnostic Messages
NEDS Area Source Cards
HXANREPT
NEDS Area Formatted Print
File
Formatted NEDS Area Source list

Figure A-3

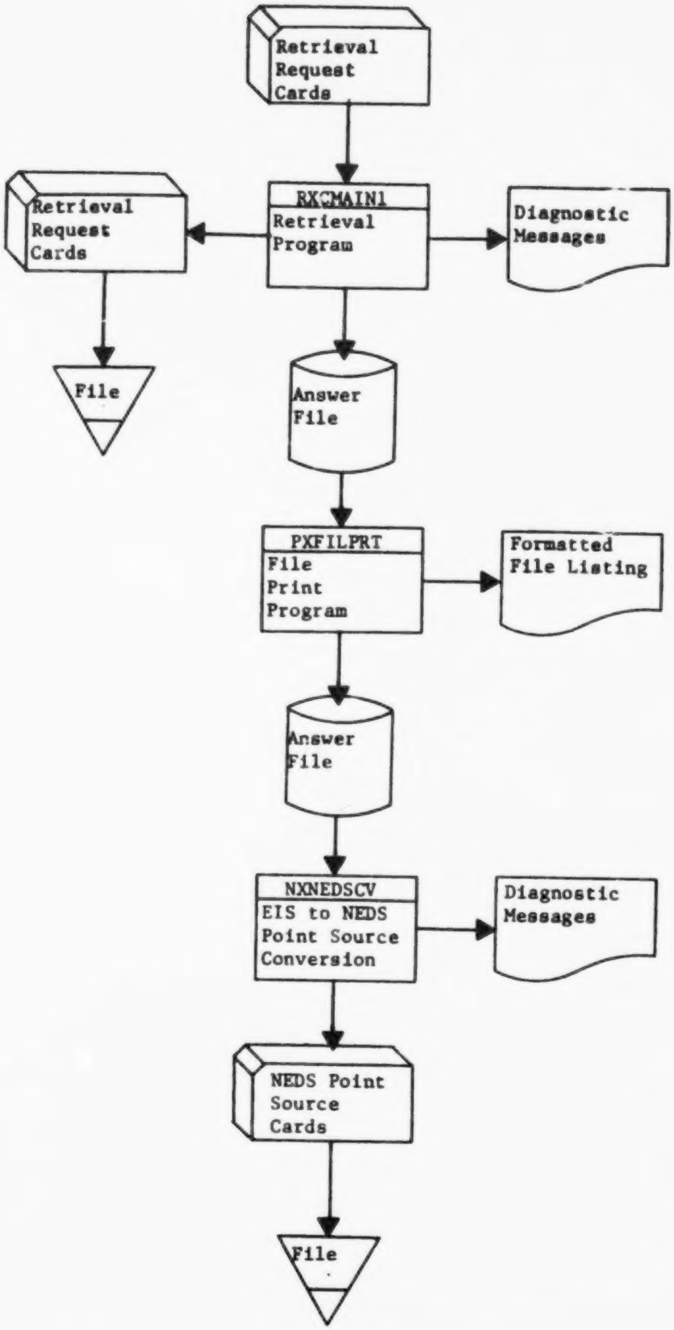

Retrieval Request Cards
RXCMAIN1
Retrieval Program
Retrieval Request Cards
Diagnostic Messages
File
Answer File
PXFILPRT
File Print Program
Formatted File Listing
Answer File
NXNEDSCV
EIS to NEDS Point Source Conversion
Diagnostic Messages
NEDS Point Source Cards
File

Figure A-4

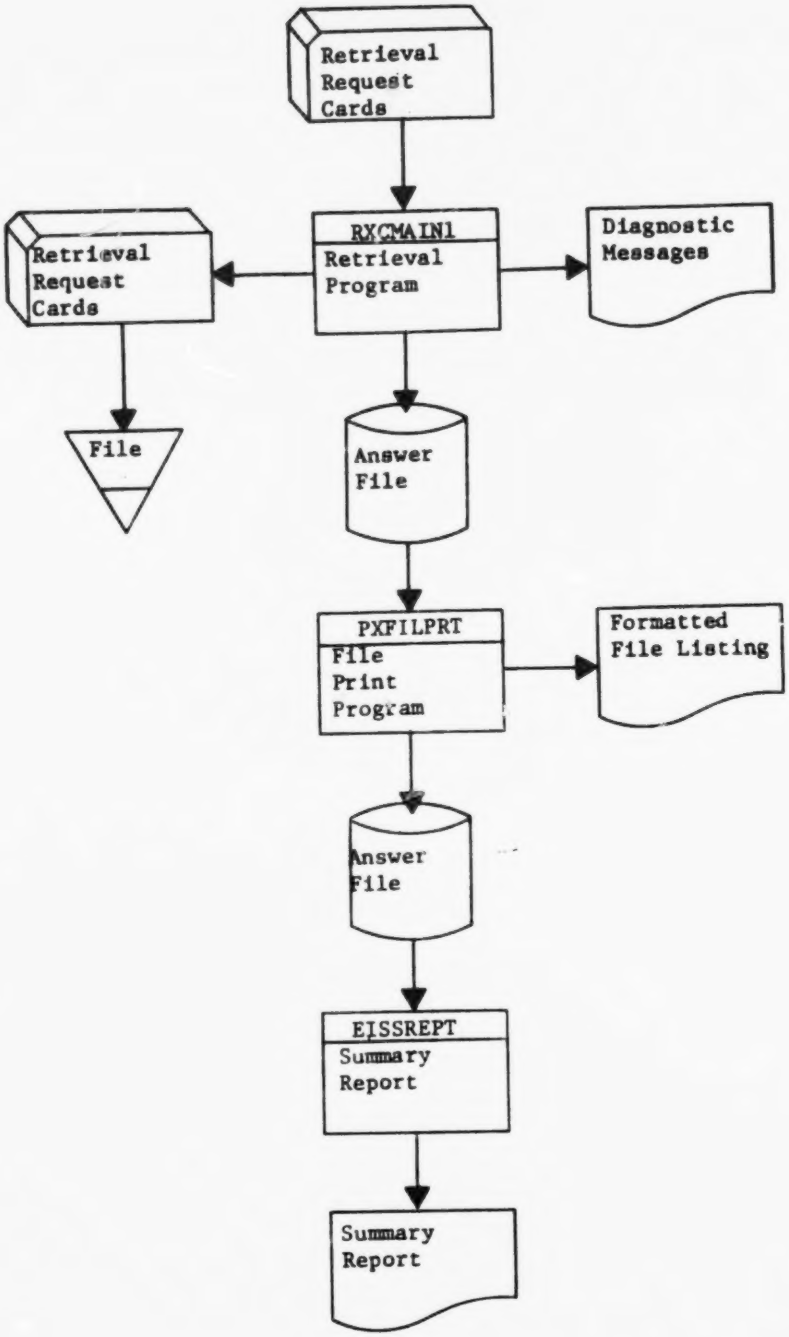

Retrieval Request Cards
RXCMAIN1
Retrieval Program
Retrieval Request Cards
Diagnostic Messages
File
Answer File
PXFILPRT
File Print Program
Formatted File Listing
Answer File
EISSREPT
Summary Report
Summary Report

Figure A-5

State	County	AQCR	Plant ID Number	Date of Record Year	 Day
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17 18

EMISSION INVENTORY SUBSYSTEM (EIS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

PLANT IDENTIFICATION
Segment 0)
Input Form

Name of Person
Completing Form ______________________

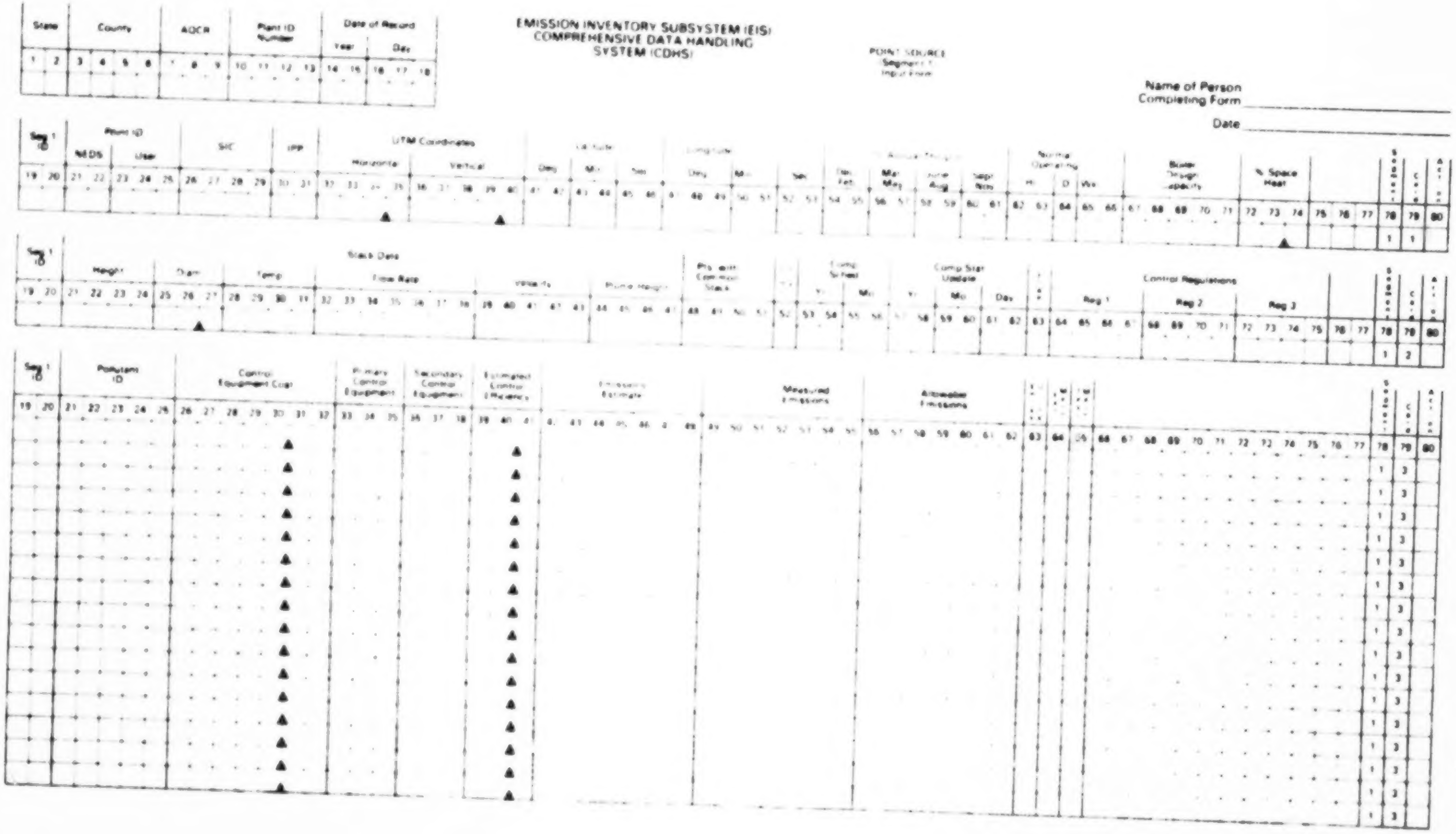
Date ______________________

Control Region	Local Control	User Plant ID	City	UTM Zone		Contact - Personal	Telephone	Principal Product	Segment	Card	Action
19 20 21	22 23	24 25 26 27 28 29 30 31 32 33 34 35	36 37 38 39	40 41	42	43 44 45 46 47 48 49 50 51 52 53 54 55 56 57	58 59 60 61 62 63 64 65 66 67	68 69 70 71 72 73 74 75 76 77	78	79	80
									0	1	

Establishment Name and Address	Number of Employees	Property Area		Segment	Card	Action
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66	67 68 69 70	71 72 73 74 75 76	77	78	79	80
				0	[illegible]	

Establishment Mailing Address		Segment	Card	Action
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66	67 68 69 70 71 72 73 74 75 76 77	78	79	80
		0	3	

Figure A-6



EMISSION INVENTORY SUBSYSTEM (EIS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

POINT SOURCE
Segment 1
Input Form

Name of Person Completing Form ____________________

Date ____________________

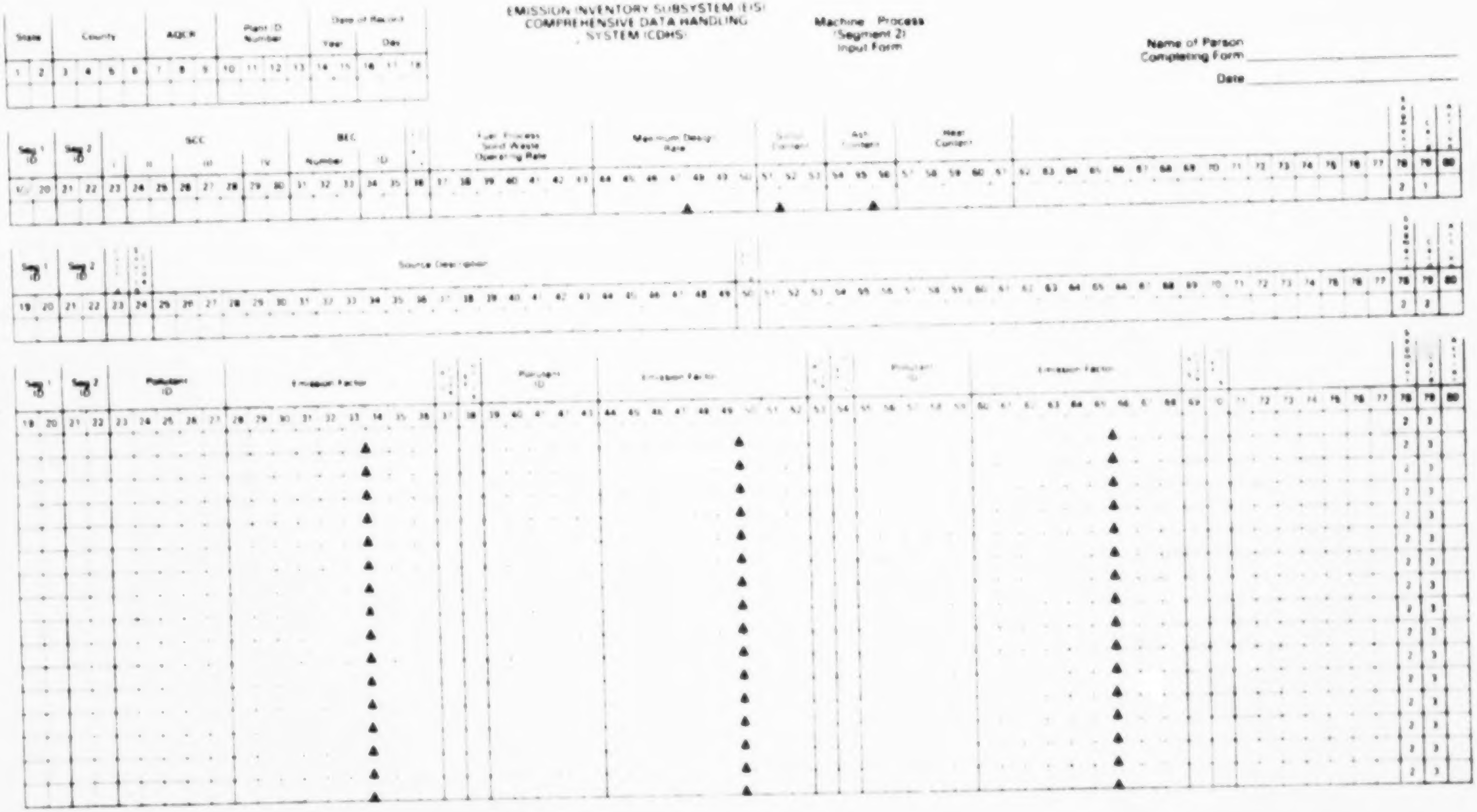
State		County				AQCR			Plant ID Number				Date of Record Year		Date of Record Day		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Seg 1 ID	Point ID NEDS	Point ID User	SIC	IPP	UTM Coordinates Horizontal	UTM Coordinates Vertical	Latitude Deg	Latitude Min	Latitude Sec	Longitude Deg	Longitude Min	Longitude Sec	% Annual Thruput Dec Feb	Mar May	June Aug	Sept Nov	Normal Operating Hr	D	Wk	Boiler Design Capacity	% Space Heat		Sequence	Card	Action
19 20	21 22	23 24 25	26 27 28 29	30 31	32 33 34 35	36 37 38 39 40	41 42	43 44	45 46	47 48 49	50 51	52 53	54 55	56 57	58 59	60 61	62 63	64	65 66	67 68 69 70 71	72 73 74	75 76 77	78	79	80
					▲	▲															▲		1	1	

Seg 1 ID	Stack Data Height	Diam	Temp	Flow Rate	Velocity	Plume Height	Pts with Common Stack	[illegible]	Comp Sched Yr	Comp Sched Mo	Comp Stat Update Yr	Comp Stat Update Mo	Comp Stat Update Day	[illegible]	Control Regulations Reg 1	Reg 2	Reg 3		Sequence	Card	Action
19 20	21 22 23 24	25 26 27	28 29 30 31	32 33 34 35 36 37 38	39 40 41 42 43	44 45 46 47	48 49 50 51	52	53 54	55 56	57 58	59 60	61 62	63	64 65 66 67	68 69 70 71	72 73 74 75	76 77	78	79	80
		▲																	1	2	

Seg 1 ID	Pollutant ID	Control Equipment Cost	Primary Control Equipment	Secondary Control Equipment	Estimated Control Efficiency	Emissions Estimate	Measured Emissions	Allowable Emissions	[illegible]	[illegible]	[illegible]		Sequence	Card	Action
19 20	21 22 23 24 25	26 27 28 29 30 31 32	33 34 35	36 37 38	39 40 41	42 43 44 45 46 47 48	49 50 51 52 53 54 55	56 57 58 59 60 61 62	63	64	65	66 67 68 69 70 71 72 73 74 75 76 77	78	79	80
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	
		▲			▲								1	3	

Figure A-7



EMISSION INVENTORY SUBSYSTEM (EIS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

Machine Process
(Segment 2)
Input Form

Name of Person
Completing Form ____________

Date ____________

State	County	AQCR	Plant ID Number	Date of Record Year	Date of Record Day
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17 18

Seg 1 ID	Seg 2 ID	SCC I	SCC II	SCC III	SCC IV	BEC Number	BEC ID		Fuel Process Solid Waste Operating Rate	Maximum Design Rate	Sulfur Content	Ash Content	Heat Content				
19 20	21 22	23	24 25	26 27 28	29 30	31 32 33	34 35	36	37 38 39 40 41 42 43	44 45 46 47 48 49 50	51 52 53	54 55 56	57 58 59 60 61	62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77	78	79	80
															2	1	

Seg 1 ID	Seg 2 ID			Source Descriptor					
19 20	21 22	23	24	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77	78	79	80
							2	2	

Seg 1 ID	Seg 2 ID	Pollutant ID	Emission Factor			Pollutant ID	Emission Factor			Pollutant ID	Emission Factor						
19 20	21 22	23 24 25 26 27	28 29 30 31 32 33 34 35 36	37	38	39 40 41 42 43	44 45 46 47 48 49 50 51 52	53	54	55 56 57 58 59	60 61 62 63 64 65 66 67 68	69	70	71 72 73 74 75 76 77	78	79	80
															2	3	

Figure A-8